ABSTRACT OF THE

Address in Surgery,

ON

TUBERCULOUS LESIONS FROM A CLINICAL POINT OF VIEW.

Delivered before the Canadian Medical Association at Ottawa on Sept. 13th, 1900,

BY EDMUND OWEN, M.B. LOND., F.R.C.S. ENG.,

SURGEON TO ST. MARY'S HOSPITAL, AND CONSULTING SURGEON TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, LONDON.

MR. PRESIDENT AND GENTLEMEN,—Though the substance of the address which I have the high honour of presenting to you may entirely fail to arouse in you any measure of satisfaction, yet I think I may claim your kind appreciation for its title. For it gives the assurance that I am not going to ask you, even in your imagination, to pass any of this September day in that gloomy room in which Death is made to deliver up his grosser secrets; nor in that other place where, in an atmosphere of methylated spirit and oil of cloves, you are accustomed to unravel the tangled threads of morbid tissues. My remarks will deal with tuberculous lesions as the surgeon meets them day by day in hospital ward and operating theatre and in private practice. It is a good thing for a surgeon now and then to get away from pathologists and morbid histologists. In recent years there has been, perhaps, rather too much inclination to apotheosise the morbid anatomist, who, standing high in his suit of sable, looks upon the clinical surgeon as if his chief duty were to supply him with material.

In the title of my address are the words "from a clinical point of view," and desiring to emphasise the fact that the word *clinical* related solely to remarks made and work done in the sick-room and in the theatre, I thought it well to call attention to its exact meaning. But on looking it out in "Liddell and Scott," I found to my dismay that κλίνη was not only *that on which one lies, a couch or bed*, but secondarily, a *bier*. I confess that the discovery somewhat disconcerted me. If a *bier* why not a *mortuary table?* At any rate the word "clinical" is of wider signification than I supposed it to be; so that the pathologist might have right on his side when he claimed that clinical instruction, begun at the bedside, and carried, perhaps, into the operating theatre, is not actually complete until he has written the epitaph.

Even on this side of the middle of the dying century, institutions were in existence in which much pathological work was actually done within the walls of the hospital itself. This, of course, we know to have been quite wrong. But surely we have now gone to the other extreme: the pathological laboratory is constantly getting further and further away from its source of supply. The pathologist is no longer a practitioner of medicine, his interest is not in the case but in the subject.

The clinical surgeon has of late, I think, been a little too much under the influence of the experimental pathologist and bacteriologist. When some important surgical problem awaits a solution which cannot be effected in the ward or on the operating table, the clinical surgeon turns to his enthusiastic and obliging friends in the laboratories who, in order to help him, straightway proceed with careful thought and gentle hands to sacrifice upon the altar of Hygeia some mongrel curs or a few of those tailless rodents which, so far as I can see, have been provided solely for the use of the experimental physiologist and pathologist. Then, because such-and-such a thing happens under such-and-such circumstances in the laboratory to the dog or the guinea-pig, the experimental pathologist is apt to assume that in different circumstances it must happen also in man himself.

No one will think, I trust, from what I have said, that I would underrate the work of the experimental pathologist; it certainly is not so, for I well know that it is to these workers that we owe our knowledge of the precise cause of diphtheria as well as of tuberculosis—of tetanus and erysipelas, and of many other serious diseases. And knowing the cause we have been enabled in many cases greatly to influence the course of the disease by treatment. Indeed, it would be almost impossible to over-estimate the practical value of experimental laboratory work both to the profession and to the public. Nevertheless, there are some of the public who, in their ignorant well-meaning, and in their well-meaning ignorance would once and for all stop such beneficent research. But stranger still, there are some members of our own profession in England who also try to get in the way of scientific progress. Fortunately, however, they have not the power of doing much harm.

Much of my clinical work has lain amongst senior students: I come in contact with them just as they have left the laboratories and are proceeding to put what they imagine to be the "finishing touches" upon their professional education. They have spent many delightful hours in a pathological laboratory and in a white cotton smock; they have cultivated and even tamed bacilli; they have seen how potent they may be for evil, and they are firmly of opinion that if once such germs gain access to a suitable spot in a suitable individual, nothing short of the most vigorous surgical measures can suffice for the eradication of the disease and for the emancipation of the host. This is the students' bacteriological faith and except they act up to it their patients cannot be saved. Many young practitioners also hold that faith. Where do they learn it? Not in clinical surgery.

But is the outlook in advanced tuberculous disease necessarily so hopeless in the absence of active surgical treatment? To answer this very important question I will instance an imaginary case of a young man who a year or so previously hurt his back in a fall at a gymnasium. He has now pectoral neuralgias, and dull pains between his shoulder-blades and in his back, which have probably been ascribed to "rheumatism." Eventually the discovery is made that the third and fourth dorsal spinous processes are unduly prominent, and it is evident that the bodies of those vertebræ have undergone complete tuberculous disintegration. The disease is close behind the arch of the aorta, and the surgeon is unable to get at it. He cannot scrape it, and he cannot even irrigate it with germicidal lotions. I believe that there are some surgeons who would attack it if they could: *rien n'est sacré pour un sapeur;* but fortunately he cannot possibly get at it. What, then, is to be the future of this patient? Is he going to die the death, as the guinea-pig would in the laboratory? Most certainly not. He is to be made to lie about, in the sun if possible, and he is probably going to get well. Everyone here has acquaintance with such an individual, or if he does not know him personally he has seen him in the street. He is rather a short man with peculiarly high, square shoulders, and with a boss between them. And not only has he long since outgrown his tuberculous disease without any operative assistance whatever, but could we see him in his own home we might not improbably find him—and I say it with some regret—surrounded by a crowd of apparently healthy sons and daughters.

Such a case is one of great clinical importance; it shows that a man with an undoubted tuberculous lesion of the first magnitude can completely recover without having undergone any operative procedure whatever. At the end of the nineteenth century it is somewhat unusual for any patient with any surgical affection to be allowed the opportunity of showing what he can do without submitting himself to operation, so that such an account as that which I have just instanced becomes not only important but actually interesting. One rarely hears speak now of the *vis medicatrix Naturæ:* surgical zeal has apparently rendered it not only obsolete but superfluous.

Another instance of the favourable course which undoubted and severe tuberculous disease may run without active surgical interference, is seen in the case of old-standing hip-joint disease, the boy actually "growing out of his trouble." The disease, let us suppose, began at that period of life when it is customary to send a boy to school, and his school-life was frequently interrupted and was continuously clouded by the affection. But he is now a young man at college, and though he walks lame and is precluded from taking an active part in athletics, still he is vigorous, and he has evidently and completely triumphed over his disease. I am not sure that I have in clinical work ever before used the specious expression, "growing out of a disease"; and possibly I might not do so now if I thought that there were any students or unqualified persons present, for its adoption

might prove unfortunate or even dangerous. It is a rather favourite expression, however, amongst parents and other ill-informed persons when confronted with a child with a tuberculous lesion. Would they expect a garden to grow out of its weeds or a field grow out of its thistles? No; it is a popular superstition, but, like most erroneous beliefs, it is founded on a substratum of truth. For, as a matter of fact, many patients do "grow out of" tuberculous disease.

I have failed to discover that iodoform is of any peculiar value in the treatment of tuberculous lesions. At any rate I have long since discarded it, and I have not noticed any falling-off in the results of my practice in consequence. Iodoform is an irritant and a poison; and it is apt to be septic, as germs can grow upon it. Some time since a lady was sent to me for my opinion about a tuberculous ulcer of the anus which a practitioner had long been treating with iodoform. She earnestly begged me to consider if I could not recommend some other local application, as she said that the smell of the yellow powder rendered her "socially objectionable." This was for her a very serious matter, as she kept a fashionable boarding-house, and whilst many members of her household seemed to notice the peculiar odour, some few of her young men "paying-guests" actually appeared to recognise the drug itself.

THE FORCIBLE STRAIGHTENING OF CARIOUS SPINES.

The direct treatment of the angular deformity resulting from tuberculous disease of the spine is a subject that a few years ago was thrust somewhat vigorously upon us, not only by articles in the medical papers but by the reproduction of photographic representations of ghastly clinical procedures in the pictured journals of the lay press. This is hardly the way in which one would expect solid surgical work to be advanced.

To affirm that the forcible straightening of carious spines must needs be unsurgical simply because it is a reversion to the ways of the bone-setter would be unfair, for the blundering bone-setter sometimes did good by chance. But at any rate he experienced none of that sense of responsibility which a surgeon must feel when he is proposing to straighten a tuberculous spine. It is obvious that in straightening the angle the tuberculous ulcer of the vertebræ must be widely opened out, and that if the neural arches have been already cemented together this rigid support must be broken across. And, supposing that this is done, and that the patient survives the risks which are inseparable from the procedure, will the widened osteal ulcer duly heal and the neural arches again become solid? Possibly so. But—and this is the point—will there be no further recurrence of the hump?

Though I should be grieved to stand in the way of surgical advancement, I do not mind getting in the road and temporarily impeding traffic whilst we are taking time to consider the route, and are assuring ourselves that the stream of surgical practice is going in the right direction. My opinion is that the deformity of Pott's disease does not lend itself to operative treatment; that forcibly to interfere with it is to thwart Nature in her good attempts at effecting a curative consolidation in her own way—and Nature's ways, as a rule, are not unworthy of our respectful recognition. I think, further, that in a short time we shall hear very little about the method.

The humped back of spinal disease is, of course, an opprobrium, and it is small wonder that the surgeon is anxious to efface it. But if he had given proofs of such laudable anxiety at the beginning of his treatment of the case he would probably have had no hump to deal with. I have no hesitation in saying that, even at the present time, the treatment of spinal disease in its earliest stages is too often half-hearted and sometimes actually blameworthy. It may be urged by way of excuse that at the very beginning of spinal disease the symptoms are so equivocal that the practitioner hesitates even to whisper his opinion, lest the disappearance of the symptoms should suggest that after all he is an alarmist. He knew that the girl had symmetrical pains in her chest, abdomen, or legs; he knew that she got easily tired at play, or that she was inclined to loll and lie about when others were full of activity, and that, regardless of nursery manners, she persistently sat at meals with her elbows on the table. He suspected spinal disease; he even told the parents that the girl should be kept quiet. He may actually have gone so far as to sketch out a plan of treatment which was designed to secure a certain amount of rest, but he was slack in seeing that even this small measure was carried out. In short he had not the courage of his opinions. So the case was allowed to drift.

Oh, for the spirit of Lady Macbeth who called out to her weak-kneed spouse and fellow-practitioner—

> "Infirm of purpose! Give me the daggers!"

I am a great admirer of Lady Macbeth though I am fully aware that her character is not faultless. She was not the sort of person, perhaps, to be trusted with the dissection of tuberculous glands from the neck or of operating on a case of torticollis, but how splendid she would have been in the treatment of early spinal disease. There would have been no half-measures with her.

THE TREATMENT OF VERTEBRAL CARIES.

If a practical surgeon were asked what is the proper treatment of early spinal disease he would unhesitatingly say "rest." Yes, absolute and uninterrupted rest. But there is only one way of insuring such rest for a child, and that is by making him lie flat in bed. As I shall set forth directly, he is not to be kept actually in bed all the time; but in every case the treatment is at any rate to be commenced by imprisoning him in a pillowless bed. This, I feel sure, is the only way of successfully inaugurating the treatment of rest. But it is of little use if, when in bed, the patient is allowed to roll about, to sit up for his meals, or to hang over the side of the bed in order to pick up a dropped toy. The details of the treatment must be seriously considered, and the medical man must make it his business to see that they are loyally and thoroughly carried out. He must not content himself merely with giving his instructions; the parents will very likely want careful looking after as well as the boy, or else as soon as the medical attendant has left the house, or at any rate after a short period of rest, the boy will probably be allowed to do pretty well what he likes, and so the case will quietly drift. What the circumstances demand is the presence of a sort of clinical policeman in the house—in the shape of a hospital nurse.

I know that there are all sorts of schemes, corsets, apparatus and braces (as my American friends call them) for treating spinal caries without keeping the child flat. But they are all wrong; wrong in theory and wrong in practice; and if they could be cast into the bottomless pit, and every case of spinal disease could from the beginning be treated by continuous rest in the horizontal position, there should be no more of those unsightly humps to invite speculative interference. Of course, I do not include in my anathema Phelps's box-splint, the double Thomas's splint with head piece, or any form of cuirass which takes the child in bodily and keeps him flat. Indeed, the design of each one of them is well-nigh perfect; but what I want utterly and severely to condemn is the modern ambulatory treatment of spinal caries. Indeed, I think it probable that after all the stir about the new treatment of hump-backs by forcible straightening has subsided, a most important beneficial clinical outcome will be that every surgeon will feel himself compelled to be far more careful in the adoption of patient and efficient prophylactic measures in the early days of the disease. Hear what Sir Benjamin Brodie says upon the subject. This is the sentence at the very beginning of his valuable chapter on the "Treatment of Caries of the Spine." "From the first moment, therefore, in which the nature of the case is clearly indicated, the patient should abandon his usual habits, and be confined altogether on his bed or couch."[1]

Naturally one turns also to see what Percivall Pott has to say upon the question of the treatment of the disease which bears his honoured name. And it is somewhat of a disappointment to find him so taken up with the subject of the "Palsy of the Lower Limbs" which follows destruction of the bodies of the vertebræ, that apparently he has not the inclination to discuss general measures. But it is all delightful reading; and even to-day it is brimful of clinical instruction. What a relief it is to read a chapter or two of Pott, or Brodie, or Chassaignac after one has been poring over the pages of some modern text-book in order, as the saying is, to "keep abreast with the times"! Pott seems to put his red velvet sleeve around one's shoulders and to draw one aside from the bustling crowd of the "busy practitioners" (in whose peculiar interest modern text-books are quaintly said to be written), and to talk to one in the delightful manner of those whose literary style has not been spoilt by the habit of counting words on telegraph forms, or

[1] Observations on the Diseases of the Joints, 1850, page 342.

of compiling "copy" of precise length, and in a limited time, for medical publishers!

However, Pott has a few remarks to make about the treatment of the later stages of spinal disease, but I am afraid that they will not prove acceptable to most modern surgeons any more than my own poor remarks on that subject may do. Still, it is a great pleasure to know that one is in good company the while Pott is talking about the treatment by "spinnal supports" and "steel boddices," and as I am telling you what he says I feel his velvet sleeve leaving my shoulders and actually passing around my neck. He says that though the use of these pieces of machinery is so general, and the vulgar prejudice in their favour is so great, he has long been convinced of their perfect inutility; and, moreover, that he is satisfied their effects are mischievous.

Speaking generally, the acceptance of a simple, unromantic clinical method makes a far more serious demand upon the parent's or the patient's confidence than does the bidding of him to do some greater thing. This is understood and acted upon by the quack who, merely to create an impression, inserts in a lengthy prescription some rare and perhaps rubbishing ingredient which he thinks the apothecary will be unlikely to have in stock; who writes out a fussy dietary with unworthy attention to detail, and who, having failed to effect the promised cure, endeavours to preserve an unenvied reputation by sending his confiding patient to some far-distant watering-place. In spite of education people love quackery now just as much as they did in the time of Elisha; and the higher they are in the social scale the more, apparently, they seem to hanker after it. The brief clinical record which we have of the tuberculous lesion of the Syrian Lord Roberts admirably illustrates these points, for,

> "Naaman was wroth, and went away, and said, Behold, I thought, He will surely come out to me, and stand, and call on the name of the Lord his God, and strike his hand over the place."

No; if he was to undergo the water-cure it certainly should not be in a muddy Israelitish stream; he knew of a couple of spas in Damascus which were really high-class! "So he turned and went away in a rage." But being "a great man" he was not obstinate; so he changed his mind, followed out the instruction to the letter, and, to his intense delight, attained the reward which sometimes falls to those who do exactly what their medical attendants tell them. At this point, so far as this address is concerned, the clinical aspect of the case of Naaman ends; but it still contains an important lesson from a public point of view. For when the gallant officer found that his cure was complete he went straight to his good doctor—whilst the tear of gratitude was still in his eye—and begged his acceptance of a substantial and appropriate reward for the great service which he had rendered.

Here, in eastern Canada, it would especially ill become me to speak lightly of the value of cod-liver oil in the treatment of the disease under consideration, but perhaps I may humbly suggest that there are other remedies which may be looked to in the circumstances. As a matter of fact I am a great believer in the value of the oil, but I would not against his will insist on a child taking a dessert-spoonful or even a teaspoonful of it three times a day—as the manner of some is. So forced down, it is apt to upset the stomach as well as to cause diarrhœa, and it may then be found floating upon the surface of the dejections. We are all apt to get too much in the habit of prescribing medical and dietetic treatment by routine, ignoring the fact that constitutions are not equally made to pattern. You have heard of that submissive patient for whom Sir Andrew Clark had laid down a very particular and strict regimen which ended up as follows—"and after dinner one cigar; not a strong one; a single Manilla cheroot." In answer to the illustrious physician's inquiry, a week later, as to how the dietary had answered, the unhappy patient, whilst replying that he was certainly better, pleaded to be let off the cheroot, which had invariably had the result of dispossessing him of his dinner! Possibly, however, after all, it was that cheroot which had played the most important part in effecting the gentleman's improvement.

Cream, butter, bacon, and other fatty foods are all good for tuberculous patients, but I think that there is nothing quite so valuable as cod-liver oil. And if a patient assures me that he *cannot* take it, I often manage successfully to administer it after breaking up a conspiracy amongst his olfactory, optic, and pneumogastric nerves. He probably confesses that he likes sardines; so, without his becoming aware of the trick, I have the preservative cotton-seed oil emptied away, and keep the sardine-box filled with fresh cod-liver oil, of which every day he unconsciously takes a substantial amount. For a tuberculous infant I order systematic inunction of the limbs and body with cod-liver oil every evening after the warm bath. I fully understand that this is apt to make the child "socially objectionable," but this is overlooked when the mother finds that the child is improving, and steadily increasing in weight. A steady increase in weight is a splendid clinical omen in the treatment of tuberculous or quasi-tuberculous patients.

PROPHYLAXIS.

The extermination treatment of tuberculosis is a subject in which every member of the community should be encouraged to take a personal and intelligent interest. It is a great mistake to allow it to be regarded merely "a doctor's question." And to wage a successful war of extermination the attack should be begun right early. It is a question which is of vital importance for the nursery, the schoolroom, the dwelling-house, the store, the office, the barrack—in fact, it concerns every department and every period of life. The disease is everywhere, and its eradication is, therefore, a matter of concern to everyone. It has not yet been shown that the offspring of tuberculous parents are born actually tuberculous, but it is beyond question that they are very prone to inherit a peculiar physical condition which renders their tissues an easy prey to the germs of the disease. The family history of many patients who at the threshold of life become the subjects of enlarged glands, or of chronic affections of the bones or joints, gives incontrovertible evidence of there being a marked hereditary disposition in the matter of tuberculosis.

So comes the question, ought there to be a law preventing those who are undoubtedly tuberculous taking upon themselves the responsibility of parentage? There are some who would answer this affirmatively and without hesitation. But what would the Church in general say to it, and what would the tuberculous curate in particular say to it? He would tell us that he reads in the very beginning of his Book that he is to "Be fruitful and multiply"; and, to do him justice, it must be admitted that in England, at any rate, he does his best to carry out this instruction to the very letter. But let him finish the injunction—Man was to be fruitful that he might *replenish* the earth. Now, though I do not claim to be in possession of peculiar knowledge on this point, I cannot think that the Architect of the Universe who "saw everything that He had made and, behold, it was very good," could have desired that this beautiful world was eventually to be stocked with so large a proportion of tuberculous rubbish. I am fully conscious of the fact that in suggesting the desirability of preventing the marriage of tuberculous subjects I am advancing a somewhat extreme measure, but surely the subject enters very largely into the question of prophylaxis. It is one, moreover, that will have to be deliberately approached and dealt with some day, and that, perhaps, soon. I do not think that our Houses of Parliament as at present constituted will be anxious to occupy themselves with an attempt to solve this question, vast as its Imperial importance is, but I think that the county councils which we have lately established through England might find the task not uncongenial. The question is fully as important as that of water-supply, or of protection from fire, or of the isolation of infectious disease, each of which is already in their grasp. Indeed, I think that it falls in under the last heading. And what scope it would afford for discussion!

You will remember that when Horatio and Marcellus joined Hamlet on the platform after the appearance of the ghost, and showed great anxiety to know what had been the subject of his remarks, Hamlet tried to put them off by telling them that his communication had been something of quite a commonplace nature, on which Horatio ejaculated:—

> "There needs no ghost, my lord, come from the grave,
> To tell us this."

I do not know what space the "perturbed spirit" had traversed in order to deliver his address to the unhappy prince, but I have travelled about 4000 miles to deliver mine. And if you feel inclined to suggest that there was no need for one to come so far to tell you that which I have just unfolded—that it is commonplace, and by no means worth my long journey or your short one—I shall conclude with Hamlet's retort,

> "Why, right; you are i' the right;
> And so, without more circumstance at all,
> I hold it fit that we shake hands and part."

As a matter of fact, I have not, like the ghost, temporarily escaped for the purpose of this communication from a place where sulphur, burned in the open, is the ordinary domestic fuel, but I am here in response to a kind and highly flattering invitation from yourselves. I had, indeed, made arrangements for spending an autumn holiday which certainly did not include two weeks of sea-sickness; but when I received your President's command (for so I regarded your invitation) I at once scattered my personal plans and considerations to the winds and decided to accept it. And let me tell you that coming to Ottawa is not to me like going amongst strangers, though it is my first visit here; it arouses in me a feeling somewhat like that experienced by a man who is taking a homeward journey, for my father was a Canadian. From my infancy I have had pictured to me, and have been encouraged to interest myself in, your forests and rivers, your orchards and wide fields of waving corn, your green pastures and still waters, and your lingering snows (kindly notice that I have put the snows *last*). I have also constantly heard from my childhood of the intense loyalty of the peoples of this great and fertile country, and of the loving devotion of its sons and daughters to that dear Lady who is, indeed, a Mother to us all.

Lastly, let me tell you that your complimentary invitation came to me just after those dark days of trial in which an ambitious, a cunning and an unscrupulous race had been endeavouring for ever to overwhelm us. Dark indeed were those days; but darker still would they have been had we not known that your strong-limbed and keen-eyed sons were standing by us in our time of need. It is certainly not for a humble individual like me to presume, or to attempt, to say what the feeling of undemonstrative England may be towards Canada: I allude to this and to other circumstances only that you may in some measure see with what pride I accepted your invitation, and in order that you may the more fully appreciate the sincerity of the thanks which I herewith tender you for thus directing my course to Ottawa, with an inclination Eastwards to Nova Scotia—and to Halifax—where, in 1812, my good father was born.

An Address

ON

THE PREVENTION AND TREATMENT OF POST-PARTUM HÆMORRHAGE.[1]

BY JOHN W. BYERS, M.A., M.D., M.A.O. (HON. CAUSÂ) R.U.I.,

PROFESSOR OF MIDWIFERY, QUEEN'S COLLEGE, BELFAST; EXAMINER IN OBSTETRIC MEDICINE IN THE ROYAL UNIVERSITY OF IRELAND; VICE-PRESIDENT OF THE OBSTETRICAL SOCIETY OF LONDON; PHYSICIAN FOR DISEASES OF WOMEN TO THE ROYAL VICTORIA HOSPITAL, BELFAST; CONSULTING PHYSICIAN TO THE BELFAST HOSPITAL FOR SICK CHILDREN; AND PRESIDENT OF THE NORTH OF IRELAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

GENTLEMEN,—Post-partum hæmorrhage may be defined as hæmorrhage occurring after the birth of the child and either before but usually after the delivery of the placenta. If it occurs within a period of 24 hours it is said to be primary, but for purposes of discussion we may say clinically that post-partum hæmorrhage occurs soon after delivery or, if later, before the usual period that the medical attendant leaves his patient believing her to be safe.

AMOUNT OF BLOOD LOST.

It has been stated that as a result of careful estimates made in lying-in hospitals the average amount of blood lost in childbirth is one pound, but while this may be accurate scientifically, yet for practical purposes it would convey little information to tell a medical man engaged in private practice that when the blood lost at a confinement by one of his patients exceeded, say, from 16 to 20 ounces he was to regard it as a case of post-partum hæmorrhage. In practice we soon come to know that every patient is a rule to herself as to the amount of blood she loses during the birth of her child. Some lose more, others less, and it is probable that, as Dr. Giles has pointed out, there is a "physical temperament" characterised by copious pigmentation and the brunette complexion in which the tendency to hæmorrhage is greater, and among such the normal amount of loss at the time of labour would be above the average. A woman may be said to suffer from post-partum hæmorrhage when she has a sudden excessive loss of blood after childbirth or when a slighter amount continues to flow, and when at the same time there is either uterine inertia or traumatic lacerations of the parturient canal, the effect of the hæmorrhage being shown by her constitutional condition, as evidenced by her appearance (variations in pallor) and by her pulse (rapid, low tension and the intervals between the beats not well marked).

PATHOLOGY.

In order that we may treat post-partum hæmorrhage it is necessary to know what are the usual pathological conditions present in cases of bleeding setting in immediately after delivery, and the causes may be grouped under two heads. A.—Hæmorrhage due to uterine atony, the bleeding in these cases arising from the uncompressed vessels in the placental area. B.—Wounds of any part of the parturient canal without any necessary inertia.

By far the most numerous cases fall into Group A; indeed, some would restrict the term "post-partum hæmorrhage" to cases of atony of the uterus, but for purposes of diagnosis and treatment I shall also have to speak of cases arising from traumatic lacerations. However, I ask your attention mainly to the first division:—

A.—CASES OF HÆMORRHAGE AFTER DELIVERY WITH A RELAXED UNCONTRACTED UTERUS.

In the majority of labours post-partum hæmorrhage sets in without our having had any warning to put us on our guard against its occurrence, but in some cases our suspicions as to the possibility of our having to deal with such a serious complication may have been aroused beforehand. The following are the conditions which may lead the accoucheur to suspect the onset of post-partum hæmorrhage.

I. *History.*—(1) Hæmorrhage at a previous confinement; (2) rapidly succeeding pregnancies, especially met with amongst the poor, time not being given for the uterine muscle to assume its normal condition; (3) a combination of want of exercise and the taking of too much food and stimulants, as seen among the better classes; (4) elderly primiparæ; and (5) patients with pre-existing metritis.

II. *During pregnancy.*—(1) Over-distension of the uterus (twins, hydramnios, &c.); (2) presence of a tumour in the uterus (myoma) preventing uterine contraction; (3) albuminuria; (4) extreme mental depression seen often in cases following the death of the husband; and (5) excited vascular system, especially towards the end of pregnancy.

III. *During delivery.*—1. The character of the pains in the second stage of labour. "The pains are of this kind—they are strong and quick; they do not gradually culminate into a strong pain and subside again, but they are sharp, quick, and cease almost suddenly, and the intervals between the pains are long in proportion to the length of the pains."[2] 2. A pulse keeping rapid towards the end of delivery, with low tension and of a jerking nature. This state of pulse is quite different from that met with in nervous women at confinement or in those who have taken chloroform. In both of these conditions the pulse may also be quick, but there is a distinct interval between the beats and there is evident vascular tension.

By some it is thought the administration of chloroform during a confinement predisposes to the occurrence of post-partum hæmorrhage. At the Nottingham meeting of the British Medical Association in July, 1892, I read a paper entitled, "Does Chloroform Promote Post-partum Hæmorrhage?" in which I endeavoured to show that this anæsthetic has no effect in causing post-partum hæmorrhage provided that in all cases care is taken not to effect delivery too rapidly and also to manage the third stage of labour according to modern teaching. Subsequent experience has confirmed me in the view I have stated, but I need hardly

[1] Introductory Address to a discussion on "The Prevention and Treatment of Post-Partum Hæmorrhage" in the Section of Obstetrics and Gynæcology, British Medical Association, Ipswich, August 3rd, 1900. An abstract of this address and of the debate which followed upon it have appeared in THE LANCET (August 25th, 1900, p. 606 et seq.), but the importance of the subject warrants a fuller publication.

[2] Whittle: Brit. Med. Jour., Sept. 27th, 1873.

say that in all cases in which in obstetric practice chloroform is given to the surgical degree a competent person should be asked to administer the anæsthetic.

PROPHYLAXIS OF POST-PARTUM HÆMORRHAGE.

There is no complication met with in obstetric practice of which it can be more truly said that its treatment is its prevention, and the best proof of this aphorism can be found in the circumstance that while students and medical men in the early years of practice dread the condition, as they get more experience they become less fearful of it and really meet it less frequently. I propose to speak first of the prophylactic measures to be used to prevent its occurrence in every case, and subsequently to say something as to the measures to be adopted under those special conditions which I have mentioned as leading us to suspect its onset.

PROPHYLAXIS TO BE ADOPTED IN ALL CASES.

The two measures which should be adopted in every case to prevent post-partum hæmorrhage are—(1) the proper management of the third stage of labour; and (2) the important principle never to deliver in the absence of pains.

1. *The management of the third stage of labour.*—Of no condition in obstetric practice may it be said with greater truthfulness that "meddlesome midwifery is bad" than of the management of the third stage of labour. This is due partly to the teaching of Credé, but still more to inaccurate knowledge as to what occurs in the uterus after the birth of the child. There are two factors in the third stage of labour—(*a*) the separation, and (*b*) the expulsion of the placenta with the membranes. Nature should be allowed to separate the placenta, and then if she is not equal to the second task the accoucheur can assist in helping her to expel the already separated placenta. The great mistake is an attempt made at once by the obstetrician to express the placenta from the upper or contractile part of the uterus—a line of practice liable to be followed by retention of membranes, post-partum hæmorrhage, and even septic poisoning—instead of waiting until certain signs indicate that nature has separated it. For the sake of clearness and because of its enormous importance as a preventive of hæmorrhage after delivery let me point out the best method of managing the third stage of labour.

As soon as the head of the child is born the left hand of the accoucheur is placed on the woman's abdomen over the fundus of the uterus, the ulnar edge of the hand looking towards the vertebral column. The child's eyes are wiped and a finger ascertains if the cord is round its neck. During the subsequent birth of the child the left hand of the accoucheur follows down the fundus. Immediately after the child is born the woman is turned on her back, the advantage of this most important step being twofold, as it enables the uterus to be easier and better controlled by the accoucheur's hand, while it prevents (especially in multiparæ) the entrance of germ-laden air through the relaxed vulva. As soon as pulsation has ceased the nurse ties the cord, one ligature being placed in the usual way near to the child's abdomen, the other close to the vulva of the mother (care being taken gently to draw down the cord so as to leave no loop in her vagina). The hand of the accoucheur never leaves the fundus (except in the case of a child born in white asphyxia, when the medical man must look after it and the nurse takes his place in controlling the fundus). No attempt should be made to massage or stimulate the uterus; all that is required is simply to control the uterus with the hand and to ascertain when the placenta has separated. This can easily be diagnosed by the following signs: 1. A sudden rising up of the uterus which may have previously been largely in the pelvis. 2. A swelling detected above the pubes due to a bulging forward of the lower uterine segment. It is very much in the position of a distended bladder and is sometimes mistaken for it. 3. Greater mobility of the uterus. 4. Expulsion of a few more inches of the cord as shown by the fact that the ligature placed at first close to the patient's vulva has now advanced from that position a few inches.

The separation of the placenta, as indicated by these signs, takes place in about from 20 to 30 minutes. When once the placenta has separated and has left the upper active and contractile portion of the uterus, then firm pressure is made by the hand of the accoucheur over the fundus during the height of a pain and the placenta is expelled out of the lower uterine segment and vagina; the nurse then takes charge of the after-birth, gradually turning it round and round to get the membranes thoroughly away. The hand of the accoucheur still controls the uterus, and while he is doing this the nurse floats the placenta and membranes in a basin of water so that he can see if there is any lobule of placenta left behind or if there is a piece of chorion wanting, indicating the presence of a placenta succenturiata. Supposing the examination of the placenta and membranes shows there is nothing left behind, the nurse bathes the patient's vulva with a mercurial lotion (all blood, &c., being removed), applies a pad wrung out in antiseptic lotion, and the binder is put on, but the accoucheur never lets go control of the uterus until this is completed. In this way the uterus is left in a state of permanent retraction.

2. The other important measure as a prevention of post-partum hæmorrhage is not to deliver in the absence of pains. As examples of the abuse of this principle I may cite such a condition as "secondary uterine inertia" where a labour comes to a standstill. The pains cease and the woman and her friends (Smellie's "Gossips") urge the medical man to deliver her. It may be she is well on in the second stage, but her pulse is quiet and her uterus on abdominal examination is relaxed and there is no rise of temperature. The medical man yields, tired it may be after sitting up all night and anxious to visit other patients; he easily slips on the forceps and delivers, but later severe hæmorrhage sets in, the uterus not having contracted, and the woman is in imminent peril. Here the proper line of action should be to give a dose of opium; the woman will then fall asleep and after a time pains will come on again and she will probably deliver herself without any assistance.

Another example of the terrible mistake of delivering in the absence of pains is afforded by the way cases of placenta prævia are sometimes managed. It is well known that one of the best methods of treating placenta prævia is by bimanual version, a foot being brought down so as to dilate and plug the lower part of the uterus with the child's leg and thigh. Too often it is forgotten that time must be allowed for uterine pains to come on and deliver the child after it has been turned; the delivery is hurried after the child has been turned, and, as a result, hæmorrhage occurs from an atonic uterus, while the forced delivery, by tearing the tissues of the lower part of the uterus (which, owing to the implantation of the vascular placenta, are as soft as blotting-paper), causes also a bleeding due to traumatic laceration of the parts.

PROPHYLAXIS TO BE ADOPTED IN SUSPECTED CASES OF POST-PARTUM HÆMORRHAGE.

When from the symptoms I have mentioned we suspect the occurrence of hæmorrhage after delivery the following precautionary measures should be adopted:—1. During pregnancy the patient should be advised to take exercise and keep her skin (baths) and bowels (purgatives) acting. She should avoid all stimulants of any kind and if there is albuminuria a milk diet should be enforced. 2. During confinement the fœtus should be delivered slowly, its birth being followed down by the hand on the fundus, and it is good practice (provided the head or breech presents) to puncture the membranes when the os is nearly fully dilated. By this measure the pains are increased in energy and it also favours tonic contraction of the uterus after expulsion of its contents. Further, from the very onset of labour the patient should be kept lying, and as soon as the os is fully dilated I have found the practice recommended by the late Dr. McClintock of giving two teaspoonfuls of liquid extract of ergot most useful.

In cases where I suspected the occurrence of post-partum hæmorrhage I have prescribed for a couple of weeks before delivery 10 grains of chloride of calcium thrice daily. This practice gave good results, but whether the medicine or the careful management of the third stage of labour deserves the credit it is, of course, difficult to say. Dr. Lombe Atthill of Dublin in cases where from the experience of previous labours he anticipated post-partum hæmorrhage or where in the progress of tedious labours the uterus became exhausted, so that he suspected hæmorrhage after delivery, gave in the former case for three weeks before the expected labour a mixture of liquor strychniæ with infusion of ergot, adding iron if the patient was anæmic and hydrochloric acid if she was plethoric. He gave this mixture for from seven to ten days; then, after ceasing its administration for 48 hours, he let the patient continue to take it. The mixtures are as follows: liquid extract of ergot, two drachms; solution of

strychniæ, one drachm; diluted hydrochloric acid, two drachms; infusion of ergot to six ounces, a measured tablespoonful to be taken thrice daily. In anæmic women the hydrochloric acid was replaced by one drachm of iron and ammonium citrate. In the latter case (exhausted uterus in a tedious labour) he recommends a dose of ergot with 10 drops of liquor strychniæ in the first dose and five drops in the next, if necessary. Endometritis in a married woman at the child-bearing age should be carefully treated.

TREATMENT OF POST-PARTUM HÆMORRHAGE.

As there is hardly any complication met with in midwifery needing greater pluck and more resourceful and prompt action on the part of the attendant it is good practice in all confinement cases to see, as the second stage of labour is advancing, that everything is conveniently ready, such as hot water, the douche, with double-current intra-uterine tube (Bozeman's or Budin's), &c. The accoucheur, fortified in this way, acts with much greater self-reliance should hæmorrhage suddenly set in. Supposing the placenta and membranes have all come away and that then suddenly bleeding sets in with a relaxed inert uterus, what should be our line of practice?

1. I think the first measure to be adopted is external uterine massage. By this means the uterus is stimulated to contraction, clots are expelled, and often this method is sufficient of itself to arrest the hæmorrhage.

2. Should this plan fail then I recommend the use of hot water. A double-current instrument (Budin's or Bozeman's) should be employed, and it is a great advantage at the same time to draw down the uterus by catching the anterior lip of the cervix with a vulsellum forceps. Certain precautions in the use of hot water are necessary. 1. Temperature. In maternities a bath thermometer is of use as indicating the proper temperature (118° F.) to be used, but in private practice the best rule is to use the water at that temperature which the hand immersed in it will bear. 2. Amount. The hot water should be used in large quantities. 3. The intra-uterine tube should be passed up to the fundus so that the whole inner surface of the cavity is bathed. 4. Antiseptic. Some use a little creolin in the hot water. I prefer salt—a teaspoonful to the pint. Never use any corrosive in the hot water, the objection to it being that, owing to the open state of the uterine vessels, absorption takes place rapidly with the risk (I have seen its occurrence) of mercurialism. Cold water should not be employed. It is not sterile and its low temperature has a prejudicial effect on the anæmia, while the hot water is distinctly stimulating.

3. The introduction of the hand into the uterus. As there is no operation I believe so dangerous to a parturient woman as the introduction of the hand of her attendant (owing to the admitted difficulty of rendering it aseptic) into the uterus, this practice should only be done when the indications are clear. If hæmorrhage sets in before the placenta comes away and if, owing to adhesions, external abdominal massage fails to expel it, then the hand must be introduced to separate and withdraw the placenta. Again, if a lobule of placenta or a piece of outlying after-birth is retained (I have mentioned the signs indicating both of these conditions) the hand should be introduced to remove the retained parts which prevent by their presence the uterus contracting on its open vessels. After the hand has been withdrawn the uterus should be carefully douched with a hot creolin lotion. In the absence of the clear indications I have mentioned the use of the hand inside the uterus is, I believe, bad practice. No doubt it stimulates the uterus to contract, but hot water will do this equally well, and there is not the same risk of septic poisoning as when the hand is introduced.

4. Should the preceding measures have failed then we may try bimanual compression, but my own experience of it is that it is very fatiguing to the accoucheur and trying to the patient; and I prefer—

5. Gauze plugging of the uterus. A word about its technique. You may, as the text-books teach, need three lengths of four or five yards, each from three to four inches broad, but I have been struck with the fact that when the uterus is drawn down with the vulsellum in many cases very much less of the gauze is needed. The plan I can recommend from personal experience is to carry in your obstetric bag one of Dührssen's sealed tins of sterilised iodoform gauze. This tin takes up little room, it can be opened quickly (as a tin of Brand's essence), and it contains sufficient gauze to plug the uterine cavity. I get it through Fannin, the instrument maker in Belfast, from Berlin. Great care should be taken to plug the uterus tightly up to the fundus. The hold given by the vulsellum forceps allows sufficient counter pressure when you are packing the cavity of the uterus. The gauze acts by stimulating the uterine muscle to contract, but also by insinuating itself into the mouths of the bleeding vessels and so directly compressing them.

6. Drawing downwards the uterus. Should we meet a case where, notwithstanding the gauze packing, hæmorrhage continues I think we should first (on the assumption that our previous technique has been at fault) remove the gauze, wash out the uterine cavity with a creolin douche, and re-apply—packing very firmly—the gauze. If notwithstanding the hæmorrhage again returns I would strongly recommend the firm drawing down as far as possible of the uterus with tenaculum forceps passed through the lips of the cervix. This method acts, I think, by kinking and compressing the uterine arteries, as is seen often in the operation of vaginal hysterectomy. In such circumstances Professor Schauta of Vienna thinks atheromatous vessels are present in the placental area. He advises laparotomy in hospital practice, or in private practice eversion of the uterus into the vagina by pressure on the fundus, so that the bleeding vessels may be caught, or an indiarubber ring (as recommended by Kocks) or a gauze bandage may be fastened round the everted uterus so as to cut off the circulation. The compression should not be maintained for more than six hours to avoid gangrene, and Professor Schauta prefers that the vessels should be caught directly rather than that pressure should be applied to the whole uterus. When the bleeding is stopped the uterus is to be re-inverted. I have no personal experience of this method: I simply mention it on the authority of the distinguished Viennese obstetrician.

7. Injection of iron. I have not used the injection of perchloride of iron solution for the past five years. It is a remedy not without danger; it causes a certain amount of superficial injury of the uterine wall, which forms a suitable nidus for the growth of germs; and if it fails plugging cannot be done owing to the effect that the iron has on the tissues. I have been told that gauze plugging has replaced the use of iron in bad cases of post-partum hæmorrhage in the Rotunda Maternity Hospital.

The treatment which I have mentioned applies to cases of uterine inertia giving rise to hæmorrhage after the delivery of the placenta. Should bleeding set in before the after-birth is delivered pressure should be at once used to bring it away, and if this fails the hand should be introduced to separate and withdraw the placenta. Should a portion of the placenta remain or a piece of membrane, or should there be the suspicion of a uterine tumour, the hand must also be introduced for diagnosis and treatment. In all such cases the uterus should afterwards be most carefully douched out with a hot creolin lotion.

B.—POST-PARTUM HÆMORRHAGE FROM WOUNDS OF ANY PART OF THE PARTURIENT CANAL.

This division includes the class of cases described by the older obstetricians as post-partum hæmorrhage with a contracted uterus. The wounds or lacerations may occur in the perineum, the crura of the clitoris, or the vessels of the bulb, the vagina (of greatest importance when the wounds are at the upper and posterior part often involving the large vessels of the cervix), the cervix, or the uterus itself.

A word or two about the diagnosis of the source of the bleeding in these cases.

1. *The history.*—It is after forceps or unaided labours that vulvar or vaginal wounds are most apt to occur, while lacerations of the cervix are more usually met with in breech and turning cases.

2. *Examination.*—The best time to distinguish between atony of the uterus and a wound of the parturient canal as a source of bleeding is when, by massage, you have made the uterus to contract. If the hæmorrhage is from uterine inertia the blood is suddenly driven out of the uterus, but in lacerations there is a continuous oozing, the uterus remaining contracted. If the uterus is washed out by means of a double-channelled tube the return fluid is clear if there is no uterine inertia, while if there are lacerations blood is still seen to flow at the sides of the tube from vagina or vulva. If blood comes from a wound of the vulva ocular inspection will demonstrate its source and its florid

colour; if with a contracted uterus there is no wound of the external parts, then a careful examination of vagina and cervix will show where the wound is in cases of hæmorrhage.

TREATMENT OF LACERATIONS.

The perineum if torn should be stitched up. Hæmorrhage from a wound of the vascular anterior part of the vulva (often produced by one of the blades of the forceps) may be stopped by a gauze pad and pressure or a suture may be passed by a curved needle. Wounds of the vagina must be stitched, and if the cervix is lacerated it can be drawn down and sutured, or a gauze plug may be applied.

A very rare cause of post-partum hæmorrhage is a wound of the uterus, or it may be due to a previously existing intra-uterine tumour which has been injured and torn during labour. Here diagnosis and treatment follow upon a careful digital exploration of the uterus. If possible the tumour should be removed and a gauze plug applied. In the rare cases of hæmorrhage due to a tear of the uterus gauze plugging should be used.

THE AFTER-TREATMENT OF POST-PARTUM HÆMORRHAGE.

When the hæmorrhage has ceased the subsequent anæmia demands most careful treatment. The patient should be kept quiet, her head low, the lower part of the bed being raised to facilitate the weak circulation. Subcutaneous injections of ether and strychnine are most useful, but our sheet anchor is saline transfusion, experiments having shown that in animals bled almost to death they will recover if a normal saline solution is introduced into the circulation. If the heart gets something to act on it can be kept going until the natural vascular fluids have time to form again. The saline solution (one teaspoonful of salt in a pint of warm sterilised water) may be introduced direct into the veins; this is the best method, but it takes time and often cannot be done without skilled assistance. On the other hand, the solution may be given by enema or, which is I think better, into the tissues by means of a large hollow needle and funnel which are connected by tubing (the instrument makers now provide the apparatus). Half a pint may be injected into the tissue under each breast. The amount of saline fluid to be used or re-used depends on the patient's condition—two, four, or six pints. It should be injected slowly at a temperature of 98° F. and we should continue it until the pulse gets slower and increases in volume. In addition to these measures in the treatment of the anæmia the patient should be encouraged to take nourishment (such as concentrated meat juices, milk, &c) which is quickly absorbed.

Bibliography.—The various text-books and works on midwifery by Dakin, Herman, Spiegelberg, Barnes, Grandin and Jarman, Playfair, Jellett, Parvin, Donald, Jewett, Ahlfeld, Lusk, Norris, Fothergill, Dührssen, Tarnier, Schroeder, Auvard, Veit, Leopold, B. C. Hirst, Olshausen, Pinard et H. Varnier, Winckel, Budin, and Farabeuf. "The Anatomy of Labour" (Barbour), second edition. "Atlas of Anatomy of Labour" (Barbour), third edition. "Selected Papers in Gynæcology and Obstetrics" (Berry Hart). "Contributions to Obstetrics and Gynæcology" (A. R. Simpson). "On the Lochia" (Giles, Obst. Trans., vol. xxxv., 1893). "Post-partum Hæmorrhage," Vienna Clinical Lecture, Medical Press and Circular, May 8th, 1895 (Schauta). Smellie's Midwifery, edited by McClintock, vol. i. "Some Observations on the Temperature, Pulse, and Respiration during Labour and the Lying-in" (Probyn Williams and Cutler), Obst. Trans., vol xxxvii., 1896. "Does Chloroform Promote Post-partum Hæmorrhage?" (John W. Byers), read at the annual meeting of the British Medical Association, Nottingham, July, 1892, Medical Press and Circular, July, 1892. "The Management of the Third Stage of Labour" (John W. Byers), Transactions of Ulster Medical Society, Session 1897-98. "The Prevention of Puerperal Fever" (W. J. Smyly), Medical Annual, 1895. "The Management of the Third Stage of Labour" (A. V. Macan), Brit. Med. Jour., August 10th, 1887. "The Management of the Third Stage of Labour" (W. J. Smyly), Brit. Med. Jour., vol. i, 1895. "The Dublin Method of Effecting the Delivery of the Placenta" (Henry Jellett), Dublin Journal of Medical Science, June, 1900. "Hæmorrhage from Laceration of Upper Part of Vulva" (A. V. Macan), Dublin Medical Journal, November, 1875. "The Prevention of Puerperal Fever in Private Practice" (John W. Byers), Brit. Med. Jour., Nov. 13th, 1886. "A Plea for the Early Recognition and Treatment of Puerperal Fever" (John W. Byers), THE LANCET, August 26th, 1896. "Pathology and Treatment of Hæmorrhage after Birth" (Fehling of Halle), Deutsche Medicinische Wochenschrift, June 7th, 1894. Atthill's letter in Brit. Med. Jour., Feb. 6th, 1886, on "Strychnine in Uterine Hæmorrhage." Rotunda Reports by the various masters. Arndt, Munich Medicinische Wochenschrift, No. 43, 1898. "A New Method of Treating Atonic Uterine Hæmorrhage by Repeated Drawing Downwards of the Uterus." "Treatment of Severe Hæmorrhage by the Infusion of Normal Saline Solution" (J. H. R. Glenn), Transactions of the Section of Obstetrics, Royal Irish Academy of Medicine, 1895. "Collapse from Post-partum Hæmorrhage treated successfully by Subcutaneous Injection of Ether" (A. V. Macan), Dublin Journal, 1876. "La Pratique des Accouchements Obstétrique Journalière" (Henri Varnier), Paris, 1900.

THE CHEMICAL EXAMINATION OF GASTRIC CONTENTS.

BY FRANK SHUFFLEBOTHAM, M.A., M.B., B.C. CANTAB.

DURING the last 20 years no branch of medical science except bacteriology has received the attention of so many observers as the chemical examination of gastric contents. Two causes may be assigned for the rapid advances made in this period. The first, and perhaps the more important, is the introduction of the use of the stomach-tube, an instrument which enables us to study the various processes of digestion at its different stages. Previously to the adoption of this tube all we knew about digestion was obtained from observations made upon cases of gastric fistulæ and of vomiting. We can thus understand why our knowledge on this point was so small. The second cause results from the researches of the great French philosopher, Berthelot, who was the first to place the chemical analysis of stomach contents upon a firm scientific basis.

The processes of digestion are very often examined after giving test meals and the stomach contents are drawn off at different moments after the meal. When making a series of systematic analyses it is best to adopt a definite routine in this procedure. All kinds of meals have been suggested by different physicians and the greatest extremes have been adopted. Some have found that 10 ounces of dry bread and half a pint of water have served every purpose they wished, while others have prepared a menu of six courses probably with a view of overcoming the instinctive prejudice which a patient shows to having his stomach interfered with in so unpleasant a manner. The simpler the meal, however, the better, and in the cases considered in this paper the test meal consisted of eight ounces of bread cut in thick slices and covered with a little butter, together with half a pint of weak tea containing sugar but no milk. Two hours later the stomach contents were drawn off.

In a particular case it is always as well to consider whether anything will be gained by giving the patient the test meal and drawing it off from the stomach. In a case of long-standing dilatation of the stomach due to carcinoma pylori there is always a great deal of residual fluid which has fermented, so that it would be futile to give a test meal with the hope of learning anything about the digestive processes going on. If we are desirous of making investigations on this point the stomach must be washed out until the washings are clear and sweet. Then the test meal may be given to advantage.

There is a practical point worth mentioning with regard to drawing off the gastric contents. In some instances after the test meal has been given it may be impossible to draw off anything whatsoever. Sometimes kneading the abdominal wall over the stomach region or getting the patient to cough will cause ejection of the stomach contents through the tube, but when these methods are without avail just sufficient water should be poured down the tube to convert it into a syphon. This quantity of water should be measured, and in making a quantitative estimation of the constituents of the specimen a corresponding correction should be made.

The gastric contents, when obtained, will probably contain a certain amount of solid material which has great avidity for the acids present. If we were to filter straight away some loss of acid would be entailed, but this is avoided by shaking up the gastric contents in a stoppered bottle until the solids are broken into small pieces. The material is then filtered with a corrugated funnel and an analysis of the filtrate made.

THE ANALYSIS OF THE FILTRATE.

An alkaline reaction is only found when the patient has been taking alkaline drugs or when a pancreatic fistula is opening into the stomach. An acid reaction may be due to free hydrochloric acid alone or to organic acids—lactic, acetic, butyric, or, rarely, to the presence of acid salts; but the commonest cause of all is hydrochloric acid in combination with proteids. I would lay special stress upon the last-named cause as it is a point overlooked in many of the standard works on the subject and also by a great number of investigators. In all I have examined 200 specimens of gastric contents, but have found absolutely free hydrochloric acid on one occasion only. This was a specimen from the

Clinical Research Association which Dr. F. G. Hopkins asked me to examine. Dr. Hopkins has found free hydrochloric acid several times in specimens sent to him for analysis. Free hydrochloric acid and free lactic acid are never present together.

The presence of free acids and hydrochlor-proteids can be shown in two ways. (*a*) By means of Congo red. A piece of filter paper is dipped into a saturated aqueous solution of Congo red and allowed to dry. This changes from red to blue when brought in contact with free hydrochloric acid, free organic acids, hydrochlor-proteids, or any combination of them. (*b*) By means of benzo-purpurin. The test is applied in a similar way to the previous one, but the colour changes from purple to black under the same conditions as above. Now the free acids which may be present are hydrochloric acid, lactic acid, acetic acid, and butyric acid, and of these the two latter are volatile.

Distinguishing tests for free hydrochloric acid.—Many tests have been proposed from time to time for the detection of free hydrochloric acid. A great many are very delicate when applied to aqueous solutions of hydrochloric acid but are untrustworthy when used for the purpose of detecting the acid in stomach contents. Without exception, they are based upon colour reaction. The test which I have always applied and which I believe to be the most elegant as well as the most reliable was first introduced by Gunzberg. A test solution is made up as follows: phloroglucin, two grammes; vanillin, one gramme; absolute alcohol, 30 cubic centimetres. This reagent when not in use should be kept in the dark, as otherwise changes may take place which will render the test inaccurate. To perform the test a couple of centimetres of the stomach contents are placed in a porcelain dish, and two or three drops of Gunzberg's solution are added. We now evaporate slowly on a water bath (not to dryness), and should free hydrochloric acid be present a characteristic rose-red ring appears around the dish just above the level of the liquid which is due to the production of red crystals. There can be no mistake about the colour when it is obtained.

Another test to which I call attention is known as the tropaolin test. A solution of tropaolin 00 in alcohol and water is used for this purpose. When the solution is concentrated it possesses a reddish-yellow colour which, when in contact with mineral acids, changes to a characteristic reddish-pink. This test is not always reliable. Its accuracy depends upon the quality of the tropaolin from which the solution is prepared. This substance varies a great deal according to the chemist from whom it is obtained, and even the same chemist often fails to make a substance which possesses identically the same properties each time.

Hydrochlor-proteids.—I have already stated that only one specimen of gastric contents which I have analysed contained free hydrochloric acid, but it must not be inferred from this that the acid has not been secreted by the gastric epithelium. Hydrochlor-proteids were present in every case, and it is to this point I wish to draw special attention. We desire to know whether the acid is being secreted or not, and if the former be the case in what quantity. Considering the amount of proteid material present in the food we cannot wonder that free acid is most often not found. As soon as the acid is secreted it unites with the proteid to form hydrochlor-proteids. These bodies will react to the litmus, Congo red, and benzo-purpurin tests, and with an aqueous solution of silver nitrate they will give a white flocculent precipitate which is soluble in ammonia solution. They can be titrated by means of standard alkalies, but the constituent hydrochloric acid cannot be detected by means of Gunzberg's test. We thus see that the hydrochloric acid of the stomach contents may be either free or in combination with proteids. The mere fact of its absence, as determined by Gunzberg's test, should be no source of alarm. It is only when we fail to find acid proteids that we know that hydrochloric acid is not being secreted. Speaking generally we may say that gastric juice does not contain free hydrochloric acid in the true chemical sense of the term. We have proof of this in the experiment of Bernard, who shewed that a very weak solution of hydrochloric acid would dissolve oxalate of lime but that gastric juice possessed no such property. Again, Blondlot proved that gastric juice does not decompose calcium carbonate, while the most dilute solution of free hydrochloric acid decomposes this body at once. Berthelot[1] inferred from his experiments that the hydrochloric acid of the gastric juice behaves as if it were united with a feeble organic base, such as leucin or peptone, and not as if it were in a free state. Now the process of digestion can go on without the presence of free hydrochloric acid. This can be shown by the following experiment which I have devised. A fairly concentrated aqueous solution of egg albumen is taken and a known quantity of a standard solution of hydrochloric acid is added to the extent of 0·25 gramme per 100 cubic centimetres. If the egg albumen be in sufficient quantity this solution will not give the characteristic colouration with Gunzberg's reagent, showing the absence of free hydrochloric acid, and yet, on the addition of pepsin, peptone is formed after the product has been kept at a constant temperature of 37° C. for five or six hours. Should the solution of egg albumen be very weak, on adding the same amount of hydrochloric acid and applying Gunzberg's test we might have an indication of the presence of free acid. For this test to give a positive result the hydrochloric acid must be more than sufficient to combine with all the proteids present, and this applies to albumoses and peptones just in the same way as to albumens. But time is an important factor in the artificial production of acid proteids. Were some two or three hours allowed to elapse before applying the test we might find that all the acid had gone into combination with the proteids and that although immediately after its addition the hydrochloric acid was more than sufficient to combine with the proteids yet after the lapse of this period of time the above combination had taken place.

Test for lactic acid.—For this purpose a solution is made up which is known as Uffelmann's reagent. It consists of 10 cubic centimetres of a 5 per cent. carbolic acid solution and 20 cubic centimentres of distilled water. To this is added one or two drops of solution of perchloride of iron and an amethyst blue colouration is obtained. The solution should be prepared fresh each time as it does not keep. In the presence of lactic acid the blue colouration is changed to yellow; in that of acetic acid to a brownish tint. Hydrochloric acid has no effect on this reagent. The brownish colouration due to acetic acid is not at all reliable and may not be obtained even when the acid is in large quantities. There are no good qualitative tests for acetic and butyric acids in the stomach contents.

QUANTITATIVE ANALYSIS OF GASTRIC CONTENTS.

The object of a quantitative analysis is to determine in the first place the amount of hydrochloric acid present, either free or combined with proteids, and in the second place the amount of organic acids, which will indicate whether fermentative changes are taking place in the organ or not.

We should first estimate the total acidity of the filtrate from the stomach contents. 20 cubic centimetres are a convenient quantity to use for titration. If it be colourless or pale yellow, as it often is, there is no need for dilution, but should the filtrate be of a dark colour it will be necessary to add water until the tint has almost disappeared. A saturated alcoholic solution of phenol-phthalein is the best indicator to use, and two or three drops are ample for any titration. The advantages of phenol-phthalein over litmus are that the colour-change at the critical point is so definite as to be easily appreciated even by the uneducated eye and, secondly, that the operation can be carried out in the cold, and boiling is not, as in the case of litmus, necessary to ensure an accurate result. A decinormal solution of sodium hydrate is the alkali against which the acid is titrated. The result is best expressed in terms of hydrochloric acid. For instance, suppose 10 cubic centimetres of decinormal solution of sodium hydrate be required to neutralise 20 cubic centimetres of the gastric contents (1 cubic centimetre of decinormal sodium hydrate solution being equivalent to 0·00365 gramme of hydrochloric acid) the total acidity of 20 cubic centimetres of gastric contents is equivalent to 0·0365 gramme of hydrochloric acid, or the total acidity of 100 cubic centimetres of stomach contents to 0·182 gramme of hydrochloric acid. This is the most convenient way of expressing the acidity and it is the one generally adopted by investigators on the subject. It should be borne in mind that this is not to say that the acidity is 0·182 per cent.

The presence of free hydrochloric acid not being necessary for the digestive processes our method of estimating this acid should be so chosen as to take account of that part of the acid which is physiologically effective—that is to say, the part which is combined with the proteids—albumens, albumoses, and peptones—found in the stomach contents. It is mainly due to the investigations of

[1] Annales de Chimie et de Physique, quatrième série, tome xxvi., p 396.

Berthelot that we are enabled to separate the organic acids from free hydrochloric acid and hydrochlor-proteids and to estimate each in an accurate manner. Berthelot found that on shaking an aqueous solution of any organic acid with ether and allowing the two fluids to separate part of the acid passes into the ether, while the remainder clings to the water. The ratio between these two parts he proved to be a constant quantity—the co-efficient of partage—the value of which is a fixed characteristic for each particular acid. All organic acids behave in this way to a considerable though variable extent. Inorganic acids when agitated with ether are not thus affected.

It is generally believed that ether will not extract all the lactic acid found in the gastric contents, but by performing the estimation in the manner which I am about to describe a determination can be obtained which possesses sufficient accuracy to serve every clinical purpose. 20 cubic centimetres of filtered stomach contents are placed in a stoppered cylinder and 30 cubic centimetres of ether are added. The cylinder should then be shaken vigorously for 20 minutes. Then it should be placed away for several hours, or it may be left all night, after which the shaking process should be repeated for another 20 minutes. This mode of procedure is very efficacious in removing the lactic acid. In some experiments which I have performed I added a known quantity of a standard solution of lactic acid to some specimens of vomit, and after treating them in the manner indicated above the yield was never less than 90 per cent. of the acid which had been added. Similar results were also obtained when I added the lactic acid to hydrochlor-albumen which I had artificially prepared. Again, in many determinations which I have made I have extracted with ether four or five times, but if the above course were adopted for obtaining the first extract no trace of lactic acid could be found in the subsequent extracts.

The ethereal extract is drawn out of the cylinder by means of a pipette and placed in a porcelain dish along with a little distilled water. The ether is evaporated over a water bath and the lactic acid passes into the distilled water and can be titrated with a decinormal solution of sodium hydrate, phenol-phthalein being used as the indicator. This gives the amount of free lactic acid. What remains in the cylinder should be gently boiled for a few moments to drive off whatever acetic or butyric acid be present and then titrated in the same way. This will yield the total amount of physiologically-effective hydrochloric acid. Both these results are best expressed in terms of hydrochloric acid, so that an easy comparison may be made with this acid. If the sum of lactic and combined hydrochloric acids be the same as the total acidity we may assume that acetic and butyric acids are absent. A quantitative estimation of these two volatile acids can be obtained by distilling a known volume of gastric contents and titrating the distillate with a standard alkali.

DIAGNOSTIC SIGNIFICANCE OF THE VARIATIONS OF HYDROCHLORIC AND LACTIC ACIDS.

I will first consider the case when the amount of physiologically-effective hydrochloric acid is normal—i.e., when about 0·22 gramme per 100 cubic centimetres are present and there is no lactic acid. This condition may indicate a normal state of affairs, or at least the absence of any serious structural lesion of the stomach. Such a result is of the greatest practical importance in cases of vague gastric symptoms which may accompany almost any internal disease. When all the symptoms point to the stomach the occurrence of normal acidity indicates nervous dyspepsia or some intestinal trouble. In chronic gastritis we find diminished secretion of hydrochloric acid, and since the subjective symptoms of this disease and nervous dyspepsia are very similar the examination of the stomach contents materially assists us in differentiating the one from the other. Naturally there is no hard-and-fast line. Lessened hydrochloric acid may occasionally occur in nervous dyspepsia, very rarely it may be absent, and the normal amount is not unfrequently found in atony of the stomach. When we find a constant diminution in the production of hydrochloric acid, with no evidence of any fermentative changes, as evinced by the presence of lactic acid, we may suspect chronic gastritis, but the same condition may occur in cases of gastric ulcer, atony or dilatation of the stomach, or sometimes in nervous dyspepsia. Patients suffering from incipient carcinoma may not secrete the normal amount of hydrochloric acid, but in these cases lactic acid may be found to be present.

An increase in the secretion of hydrochloric acid is found in a considerable number of patients suffering from gastric ulcer. In one case which I examined the amount of physiologically-effective hydrochloric acid was 0·6 gramme per 100 cubic centimetres of filtered stomach contents, and in a second case it reached as high as 0·58 gramme in 100 cubic centimetres of filtrate. Boas describes some cases where the acid was altogether absent, and says that this condition occurs sometimes in advanced chronic gastritis, gastric neuroses, and cancer. I believe that Boas refers to *free* hydrochloric acid, although in his paper no distinction is made between free acid and hydrochlor-proteids.

The conditions which favour the formation of lactic acid are stagnation of the gastric contents and absence of free hydrochloric acid. The lactic acid bacillus which is responsible for the formation of the acid is reported by many observers to be killed by free hydrochloric acid, although the contrary opinion is held by Ewald. Lactic

Analyses of Gastric Contents in Cases of Carcinoma Pylori; the Results are Expressed in Grammes of Hydrochloric Acid per 100 Cubic Centimetres of Filtered Stomach Contents.

—	Total acidity.	Physiologically-effective hydrochloric acid.	Lactic acid.
Case 1.			
(*a*) Vomit...	0·23	0·178	0·05
(*b*) ,, ...	0·23	0·152	0·08
(*c*) Drawn off by a tube	0·212	0·163	0·05
(*d*) ,, ,, ...	0·23	0·18	0·05
(*e*) After test meal and washing out stomach daily for 10 previous days	0·25	0·25	—
Case 2.			
(*a*) After test meal	0·281	0·228	0·05
Case 3.			
(*a*) Vomit...	0·09	0·09	—
(*b*) Drawn off by a tube	0·10	0·09	—
(*c*) ,, ,, ...	0·14	0·118	0·02
(*d*) ,, ,, ...	0·132	0·120	0·012
Case 4.			
(*a*) After test meal	0·202	0·136	0·06
(*b*) Vomit	0·176	0·172	—
Case 5.			
(*a*) Vomit	0·151	0·148	0·002
(*b*) ,, ...	0·143	0·142	0·001
(*c*) ,, ...	0·144	0·142	0·001
Case 6.			
(*a*) Vomit	0·29	0·165	0·12
(*b*) ,, ...	0·243	0·162	0·08
(*c*) ,, ...	0·251	0·168	0·082
Case 7.			
(*a*) Vomit	0·12	0·09	0·03
(*b*) After washing out and test meal	0·22	0·20	0·01
Case 8.			
(*a*) Vomit	0·142	0·10	0·041
(*b*) Drawn off by a tube	0·16	0·12	0·04
(*c*) After washing out and test meal	0·202	0·171	0·03
Case 9.			
(*a*) Vomit	0·205	0·16	0·04
(*b*) Drawn off by a tube	0·20	0·18	0·02
(*c*) After washing out and test meal	0·221	0·20	0·02
Case 10.			
(*a*) Vomit	0·105	0·051	0·053
(*b*) ,, ...	0·14	0·08	0·06
(*c*) Drawn off by a tube	0·14	0·09	0·045
(*d*) After washing out and test meal	0·17	0·13	0·04
Case 11.			
(*a*) Vomit	0·18	0·14	0·03
(*b*) After washing out and test meal	0·23	0·22	—
Case 12.			
(*a*) Vomit	0·12	0·06	0·05
(*b*) ,, ...	0·12	0·06	0·06
(*c*) After washing out and test meal	0·18	0·17	0·005

acid has been proved to be absent in innocent stomach affections, such as chronic gastritis, atony, &c., even in the faintest traces.

The absence of lactic acid does not absolutely exclude carcinoma, as it may be understood that the conditions favourable to the formation of this acid are not found in every case. Yet, in view of the statistics on the point, the absence of lactic acid is strong evidence against the existence of cancer. This should be borne in mind in a large class of doubtful cases of chronic gastritis where the constitutional symptoms—emaciation, the general appearance of the patient, and the diminished secretion of hydrochloric acid—lead us to suspect malignant disease.

The absence of free hydrochloric acid was demonstrated in all the above cases, but, as the table shows, physiologically-effective hydrochloric acid could be found without exception in all cases. This was a variable quantity and varied in the same patient from time to time. We also observe that when the stomach is washed out and a test meal given there is more physiologically-effective hydrochloric acid and less lactic acid than is found in vomit.

Lactic acid was present in all the cases on some occasion or other. The largest amount I have found is that quantity which is equivalent to 0·12 gramme of hydrochloric acid per 100 cubic centimetres. This was found in Case 6. In Case 1 and Case 11 it disappeared entirely after repeated washings and in all but Case 3 it was found in the stomach contents when the patient was admitted to the hospital. Six days after admission, however, in this case lactic acid was found to the extent of 0·02 gramme per 100 cubic centimetres. expressed as hydrochloric acid. There was no mistake about the diagnosis as the growth was removed by operation. Out of 21 cases examined by Boas lactic acid was present in 20 and Ewald found it in 22 out of 24 cases. Boas states that he did not find hydrochloric acid in any of his cases, from which I infer that he is referring to *free* acid.

In conclusion, something may be learnt by examining the vomit and stomach contents of patients suffering from diseases other than those of the stomach. In both anæmia and Bright's disease there is a deficiency of physiologically-effective hydrochloric acid. In heart disease there seems to be a difference of opinion, some believing that there is no change, while others hold that there is diminished secretion of hydrochloric acid. I have examined the stomach contents of 10 patients suffering from heart disease and have found that the amount of physiologically-effective hydrochloric acid was lessened in all of them. This is of importance from the point of view of treatment, for under these circumstances digestion can be artificially aided by the administration of suitable drugs.

Guy's Hospital, S.E.

A CASE OF TOTAL GASTRECTOMY.

BY DR. VIEIRA DE CARVALHO.

THE patient was a woman, aged 46 years, a native of São Paulo, Brazil, and was examined by me for the first time on March 25th, 1900. She was a weak, almost cachectic mulatto, who said that she had suffered from stomach trouble for years, these troubles becoming much worse during the last six months. Lately it had become impossible for her to get nourishment, since on swallowing anything she was seized with acute gastric pains, followed after some hours by vomiting of the food taken, mixed not infrequently with dark blood. Her condition becoming daily worse she resolved to enter the hospital.

She was extremely emaciated, weighing only 31 kilogrammes (68 lb.), but showed outwardly nothing else worthy of note. Palpation revealed the presence of a tumour of about the size of a turkey's egg in the epigastric region on the right side, close to the costal margin. This tumour was moveable, painless even under pressure, and did not seem to give the patient much trouble. Examination of the patient, the history of the case, and the gastric symptomatology convinced me that it was a case of malignant tumour of the pylorus, and I resolved to operate as soon as possible, my intention being to perform gastro-enterostomy. I therefore had the patient prepared for the purpose of operating on her the next day. The preparation consisted of general antiseptic bathing, covering the entire abdominal surface with moist salicylated cotton, ordering a free purge, and total abstention from food for 12 hours prior to the operation, keeping up the strength with alcoholic stimulants. I know that it is the practice of some eminent surgeons to wash out the stomach with antiseptics before operations on this organ. I am not in favour of this procedure, as it causes fatigue and prostration; a patient already weakened by frequent vomiting should not be harassed by the introduction of the Faucher tube. Moreover, I was sure that the stomach would contain no food at the time of the operation, as any that might have been taken would be rejected by the repeated vomiting. I also consider the antiseptic value of washing out a cancerous stomach to be purely theoretical.

Before the operation the patient had a weak, slow, but regular pulse, 60 to the minute; the respirations were 20. Everything being in readiness she was chloroformed by my colleague, Dr. Mattoso. I then made a median incision embracing the region between the xiphoid cartilage and the umbilicus. The abdominal cavity being opened I endeavoured to confirm the diagnosis and ascertain the exact site of the lesion. I saw that there was a malignant tumour of the pylorus, with slight adhesions to the neighbouring organs affecting the greater part of the lymphatics of the stomach. In view of this state of things I gave up the idea of a simple gastro-enterostomy and began to think of a total gastrectomy, in imitation of Professor Carl Schlatter.[1] Having resolved upon this procedure I began to isolate the tumour, cutting, away the omentum between ligatures, carefully uncovering the part of the duodenum not involved, breaking up an adhesion between the tumour, the duodenum, and the head of the pancreas. The adhesions were broken up at the cost of a slight laceration of the pancreatic gland causing a hæmorrhage which was controlled by ligat ng *en masse* with catgut. The tumour and the duodenum being freed I secured this part of the intestine with a Kocher clamp five centimetres below the limit of the neoplasm; a second clamp compressed the pylorus close to the tumour. As I separated the tumour from its adhesions and drew it out I isolated with antiseptic gauze the peritoneal cavity from contact with the diseased organ to be removed to avoid any accidental contamination. Between the two clamps I divided the duodenum through the sound tissues and with corrosive sublimate gauze I disinfected carefully the cut surfaces and the exposed mucous membrane of the intestine. This done, I gradually isolated the stomach from below upwards and from right to left, cutting the peritoneal folds between the clamps, extirpating at the same time the lymphatic ganglia involved, which were numerous. Having freed the stomach from its ligaments I made strong traction downward, bringing the cardiac end as low as possible, and close to the diaphragm I applied to it a Kocher clamp; a little below I placed a second clamp and between the two clamps I cut through the cardiac portion of the stomach. This part of the operation was very difficult, as the right lobe of the liver, very large in this patient, embarrassed my movements. In consequence of having been obliged to apply the clamp just as I did the section of the stomach was slightly oblique; later when the sutures were applied the diameters of the pylorus and the cardiac end of the stomach did not correspond. After careful disinfection of the cut surfaces and of the exposed mucous membranes I commenced the suturing. It was difficult to bring together the two extremities that were to be united. I made the suture with fine silk, in a double row, as advised by Hartmann[2] and Terrier—a process too well known to need describing here. The suturing being completed, the parts united and the whole neighbourhood were again disinfected with a solution of sublimate of moderate strength (1 in 1000). The isolating pieces of gauze were now removed as were also the clamps. On account of the powerful retraction of the œsophagus the recently joined parts were drawn immediately into the abdominal cavity. I then cleansed the peritoneum and closed the abdomen with triple sutures, one above the other. The operation lasted an hour and twenty minutes, leaving the patient in a state of profound shock, with the pulse almost imperceptible, the respiration superficial, and the skin covered with cold, clammy sweat. The means employed to restore her were successive injections of ether, caffeine, and strychnine, hot applications, and placing her in a position with

[1] For Professor Schlatter's full account of this case see THE LANCET, Jan. 15th (p. 141) and Nov. 19th. 1898 (p. 1314).

[2] See Dr. Hartmann's letter on p. 840 of this issue of THE LANCET.

the head lowered. As soon as the circulation began to improve I made an injection of one and a half litres of artificial serum. The effect of the serum was rapid and in a few hours the condition of the patient was encouraging. I ordered nutritive enemata every six hours. In the evening the condition of the patient was good. She was perfectly conscious; the respirations were normal, the extremities were warm, the skin was moist, the pulse was strong but very rapid (140 to the minute), and the temperature was 38·7° C. Small doses of alcohol (Todd's mixture) were ordered.

On March 28th the patient's general condition was good. Her pulse was strong, 140 per minute; the respirations were 20 per minute; and the temperature was 37·4° C. 400 grammes of normal urine were passed. Three nutritive enemata per day were prescribed, with small doses of milk. As the patient complained of intense thirst I ordered Vichy water *ad libitum* in small doses. On the 29th her general condition continued good. Her tongue was clean, her temperature was 37° C., her pulse was 120, and her respirations were 20 per minute. 900 grammes of normal urine were passed. Nutritive enemata were continued with small doses of milk and broth. The patient complained of hunger. Her tongue was clean. On the 30th her general condition was good, her tongue was clean, her temperature was 37° C., and her pulse was 120. 800 grammes of urine were passed. Nutritive enemata, milk, broths with somatose, Vichy water and alcohol were continued. On the 31st there was nothing new to be noted. Her temperature was 37° C. and her pulse was 120. 900 grammes of urine were passed. The patient continued to complain of hunger. On April 1st her general condition was good. Her tongue was clean, her pulse was 110, and her temperature was 37° C. 900 grammes of urine were passed. She had two copious movements of the bowels, the fæces being firm and yellowish, with a few coagula of milk, indicating good digestion. On the 2nd her general condition was good. The pulse was 120. 900 grammes of urine were passed and there was a small movement of the bowels. Her diet was continued as before. On the 3rd her general condition was excellent and there was nothing new to record. The dressings were now removed and it was found that primary union had taken place. The superficial sutures were then removed. Food was ordered to be given in small quantities every two hours. On the 4th all was still going on well. The patient had a ravenous appetite and begged for more solid food. She wished at any risk to eat a mixture of beans and flour. Examination of the removed stomach showed that the operation was reasonable, for besides a tumour ulcerated at the pyloric end and extending upward over the great curvature of the stomach there were numerous ganglia involved in sundry parts of the organ.

In giving this account of what I judge to be the first total gastrectomy done in Brazil I have no other than a strictly scientific end in view. I am of those who think there is no merit in being the first to repeat an operation, however rare. Surgical processes and difficulties do not vary with the latitude. At all events, I think it right and proper to record this new case in the interest of the bibliography of the subject. It raises to four the number of successful total gastrectomies, three being recorded in the masterly work of Hartmann and Terrier on the subject published at the end of 1899. Later, should my patient survive, I intend to present a detailed work on the case, for the absence of the stomach opens a wide field for the study of digestion. Who knows how much we may have to reform our knowledge of the subject, from the sensation of hunger to the digestion of meat; from the need of gastric hydrochloric acid to the function of the pancreatic juice?

São Paulo, Brazil.

HYSTERICAL SOMNOLENCE AND STATES OF DOUBLE CONSCIOUSNESS.

BY ETHEL M. N. WILLIAMS, M.D. LOND., D.P.H. CAMB.

THE study of the abnormal phenomena of consciousness found in connexion with hysteria and allied states of mental enfeeblement throws, I think, much light on those states of double and multiple personality which are so mystifying at first sight. In these strange conditions the same individual seems to live at different stages of his existence under two or more different forms. He differs in character, in knowledge, and in powers. Often the person of one phase has no knowledge of the life and affairs of the others. He calls himself by another name, he repudiates acts which he performed, and he is ignorant of persons and of affairs with which in another state he was perfectly familiar. He is apparently, in all things except the outward form, another man. Suddenly it may be memory has been lost, all his old recollections have been for the time obliterated, while a new life, a new memory, a new ego have commenced for him. After the lapse of a longer or shorter time a kind of awakening takes place; he returns to his first "normal" condition while the intervening second state is apparently wiped out. The two lives may alternate without being confused through many years. Other states may be added to these, and as many as four or five may alternate with one another in this way.

It is easy to see how in a less scientific age a belief in the supernatural nature of such phenomena would be certain to arise. Persons subject to such alterations of personality were looked upon either as possessed by devils or as inspired by God. They were either burnt as witches or were honoured as oracles. In either case they were looked upon as possessing powers and knowledge not possessed by ordinary mortals. The different treatment depended usually upon whether their pronouncements were pleasant or the reverse to those in power.

These changes in personality are, we know, dependent upon, and caused by, changes in consciousness. Personality is built upon a highly developed consciousness with the idea of the ego superadded. This consciousness is made up of memory and character—character itself being largely built up from, and modified by, memory. It is the events of a man's past life—or rather the memory-images of those events—that have, at any rate to a large extent, made him the man he is. Delete any considerable part of the memory store of any man and you will have made him a different person, for you will have taken away the ideas and motives which coloured his life and directed his conduct. I am prudent, for I have learnt in the school of experience the results of imprudence; I am cheerful or depressed, courageous or cowardly, my courage or my cheerfulness being largely dependent upon my memory store.

These memory-images are of course not always on the surface of the field of present consciousness. In the deeper strata of the consciousness of each one of us there are hosts of old memory-images believed to be lost, for we cannot call them up at will into that surface of our minds which forms the field of present consciousness; yet they still live within the limits of our memory, though not within those limits of which our present consciousness is cognisant. In normal mental life the elements composing the field of consciousness are constantly changing, yet those changes are usually small—at any rate they are never of the nature of mental upheavals and never so sudden as to cause a change in the idea of the ego. Yet suppose that by some means the present level of our consciousness were suddenly broken up, so that the memory-images which compose it were submerged, while other memory-images forming representations which belonged to a past stage in our existence, when they supported possibly a vastly different personality, were to rise up and replace them. We must remember that the memory-images which present stimuli are awaking in our minds are not the only ones those stimuli might awake. Then, if the memory-images thus thrown upon the shores of our minds—the flotsam and jetsam of our mental shipwreck—formed a fairly complete picture of that mind at some past stage in its career, the personality reproduced would be that past self divested of all powers and thoughts, and therefore of all character built upon them, which have been acquired during the years which have intervened, and re-endowed with ideas and powers which have been lost through the lapse of time. For those ideas and powers were not really lost but merely buried and hidden.

This condition is, in my experience, a very fairly common one to meet in cases of hysteria and allied states of mental enfeeblement, though it is by no means always recognised. The clinical picture is often something of the following. The patient has complained constantly both of insomnia and also that she (for it is usually a woman) is always drowsy, never properly awake. It is quite noticeable that her field of consciousness is curiously contracted and incomplete. She sees and perceives all that is going on about her, yet abnormally few associated ideas are aroused. She knows her friends and in a limited way she recognises the

scenes among which she lives, but she does not know about them in the way she used to do. To recognise her most intimate friend is a mental effort, while most of the ideas which clustered round and made their intimacy have slipped away from her mind. At length she falls asleep, but the sleep is unrestful and broken by disturbing dreams. When she wakes it is under a new phase of personality. She is no longer the person who went to sleep, but one who existed perhaps years ago. She thinks and feels as she did in that past. She usually only knows the things and recognises the persons whom she then knew. (This last statement is not invariably true. I have more than once seen the patient recognise in a partial sort of way persons whom she did not know in the life she had gone back to live. It rarely, if ever, happens that the revival is quite pure and unmixed with elements belonging to other phases of consciousness.) Occasionally, too, elements reappear derived from books or from the experience of others which have incorporated themselves with her consciousness in the past. I think that in these cases the change of consciousness has always come about in the dream. The patient has begun to dream of her past life, and then on waking has waked into that consciousness of which she has dreamed. Sometimes the disintegration of the elements of consciousness is still more complete. The consciousness into which the patient wakes contains but a few even of the elements which it possessed in the past. Thus the personality is very incomplete, the consciousness more contracted than was ever the case in health.

This obliteration of a part of the field of consciousness is probably always present to a greater or less extent in the abnormalities of consciousness which we are discussing. All such conditions have their origin in a more or less complete state of amnesia. The normal unit of consciousness has been broken up. The self has been disintegrated. Much that went to build up the vessel has been for the time lost in the shipwreck, while parts of the structure which were overlaid and hidden in the perfect and completed vessel come now again to the surface.

A case of this kind where it is possible to trace the origin of the elements of the newly-assumed personality gives one the key to those more complicated cases—found mostly in the records of continental authors though seen occasionally among ourselves—where the assumed consciousness is of so complex a nature that it is at first sight difficult to see how it has been built up out of the disintegrated consciousness of the patient. Yet this difficulty only arises when we forget the innumerable memory-images which go to build up the mental self of each one of us and the immense number which are ordinarily submerged or inhibited by the comparatively few which form the basis of our present consciousness.

It is easier from this point of view to understand those cases in which a person in an abnormal state of consciousness exhibits powers or knowledge which he did not consciously possess while in his normal condition. We have all possessed knowledge in the past which we can no longer call up at will. In the mental shipwreck it is just these forgotten fragments which get tossed up to the surface. Again, certain of our powers are, in the course of normal life, held in check by other more special powers or by knowledge more recently acquired. Children's muscular combinations are not inhibited by the knowledge of possible results or overlaid by other more special or more recently acquired combinations, so we are often astonished by the ease with which they learn to dive, swim, ride a bicycle, walk a tight rope, &c. This is also doubtless the explanation of the marvellous physical feats occasionally performed by somnambulists. The abyss below the precipice does not exist for them for they have no mental picture of it.

Exactly the same thing applies to mental powers. The phenomena of dream memory may be noticed in this relation. The dream state is a state of partial consciousness, and by reason of the absence of some elements of the normal self certain of the remaining ones may stand out with unusual prominence. It occasionally happens that in a dream we recollect a matter which in our waking moments has evaded our utmost efforts to recall it. Sometimes a piece of information which the dreamer in his waking moments has forgotten that he has ever possessed but which is now of the greatest importance to him drifts up to the surface of the dream consciousness. He wakes possessing information which so far as he can tell has come to him for the first time in his sleep. It is small wonder if in a less critical age such occurrences have been attributed to supernatural intervention.

This explanation, however, does not cover all cases of additional powers and knowledge exhibited by the subjects of these abnormalities of consciousness. Such persons occasionally exhibit powers which they have never at any stage of their existence consciously possessed. A servant girl was in the habit while in a state of abnormal consciousness of reciting long passages from Greek and Hebrew authors which she had heard her master read but of which in her normal state she could not repeat a word. A girl who in her normal state could play but little on the piano, while in a state of abnormal consciousness played brilliantly and without her notes a long and difficult passage which in her normal state she could not play at all without her notes and only very imperfectly with them. Such cases as these are not a mere revival of powers which the subject possessed in the past. The power has never been possessed by the normal, or what I will call the principal, personality. By the side of this principal personality there have existed the elements of another consciousness, submerged beneath the normal conscious self. But now there has been a partial break-up of the normal self which has allowed the rising to the surface of this secondary self with its powers and its knowledge whose existence has been absolutely unsuspected by the principal personality. So we get an alternation of personalities, the principal normal self and the secondary self each with their own capacities. Powers possessed by the one state and knowledge acquired by it are very often not at the service of the other self and are not even suspected by it. The same thing occurs to a limited extent in the phenomena of distracted attention even in healthy persons and still more markedly in hysterical and hypnotic conditions. The secondary consciousness may see, hear, feel, and even say and do things that are not participated in by the principal consciousness which is engaged elsewhere. Automatic writing as seen in hysterical and hypnotic subjects belongs to the same class of phenomena. In these cases the anæsthetic right hand will, if a pen be put into it and the hand be screened from the patient's sight, write answers to questions though owing to the anæsthesia the subject is quite unconscious that the hand is even holding a pen and much more what it is writing. A secondary personality, which under normal circumstances is subconscious, may be said to speak through the anæsthetic limb. This secondary personality is usually completely overshadowed by the principal personality and it is by this means alone that unity and clearness of thought can be obtained. In certain abnormal states, as hysterical and hypnotic states, states produced by auto-suggestion such as are seen in the trances of mediums, the principal personality is dethroned and with it goes intellectual unity, while instead we get a usually highly contracted field of consciousness with, it may be, certain powers curiously augmented.

To maintain the existence of this usually subconscious personality we do not need to call any supernatural ideas to our aid. We merely want to grasp the fact that our mental self is made up of innumerable elements, and that only a very small proportion of these are contained in the field of our normal consciousness. The great majority, like the stones which form some great building, are normally hidden from view, concealed and overlaid in the walls and foundations. So it is with the structure which is the normal self of each one of us. Yet those same stones might form either a totally different building or a heap of ruins. The consciousness of the hysteric is like a building whose walls are in a state of unstable equilibrium, always threatening to collapse, and when this does happen the elements immediately pile themselves together into a different form.

The study of hysteria and allied states brings us to the conclusion that the key to the understanding of the whole situation is the recognition of the state of partial amnesia. The anæsthesias, the paralyses, the losses and perversions of special senses can be understood only as temporary blanks in the normal consciousness, as temporary fallings away of stones from the walls of the building. It must be remembered that we have evidence that the anæsthetic limb does feel, the blind eye does see, the deaf ear hears, but the results of that seeing and hearing do not form part of the principal normal consciousness. The emotional and moral changes of the hysteric, are, I think, to be understood in the same way. The motives and ideas which in the normal state directed conduct are swallowed up in the break up of consciousness. Other motives are uncovered—usually less complicated, less disciplined, and more

coloured by the sense of self. The exact nature of the mental and emotional changes will depend upon the character of the new consciousness, and it is, I think, a grave mistake to let the diagnosis depend upon the exact nature of these changes and so to cut off cases of hysteria where the moral change is of a certain nature from closely allied cases where the moral change is a different one. So we might trace out all the features of the hysteric. It is a state of deprivation, of loss of powers, ideas, guiding principles, even though occasionally some one power or idea towers up out of all proportion to its development in the normal personality.

The phenomena of sleep and dreaming and of the hypnagogic or half-awakened state furnish us with examples of the genesis of double consciousness in the healthy life. Sleep is the resting time of consciousness. The lower centres are active, but those particular combinations of higher centres with which consciousness is conjoined are quiescent. In quiet dreamless sleep this rest of consciousness is complete and I believe sleep to be always dreamless in states of perfect health—of physical and mental equilibrium. Often, however, some slight irritant, either internal as a stimulus from stomach or intestine, or external as a noise, a light, or an unaccustomed position, breaks up this perfect equilibrium, rouses some of the higher centres, and with them an incomplete consciousness. There is a partial awaking of the psychic life but it is always incomplete. The dream consciousness is never co-extensive with the fully roused consciousness of normal active life and sometimes differs very widely from it.

We often notice in dreams a certain vagueness and confusion in our ideas of personality arising from this imperfect consciousness. We do something in our dream which in real life would cover us with shame and confusion, yet we merely wonder at it as we should in our waking moments at the deed of someone with whom we had no concern. The lack of power of forming a judgment and the want of resource of dreamers which have been noticed by everyone are in the same way due to the imperfect consciousness. Again, most of us have in dreams committed deeds from which we should not only shrink in waking life, but the motives leading to such deeds would be so completely inhibited by other ideas and motives that they would not present themselves to us as temptations. Our full consciousness is not awake, our ordinary motives and ideas are many of them inactive, and so in our dreams we are different persons, actuated by other motives, and driven to other deeds. Truly has dreaming been called a temporary insanity.

The hypnagogic or half-awakened state is only seen in health when the subject is suddenly awakened from a deep sleep before he has been sufficiently rested. In hysterical and post-epileptic conditions a more developed half-awakened state is seen, lasting for a longer time. It is the transition between sleep and waking, and so is marked by an impaired and enfeebled consciousness. The half-awakened person sees and perceives everything, but he is wanting in associated ideas. He cannot correlate facts, draw conclusions, or form judgments. He is therefore in a peculiarly suggestible state—open to the conclusions and judgments of others. He can be made to believe impossible statements and to accept opposed conclusions. The ideas usually associated with these statements and conclusions are inactive; therefore the evidence which would naturally occur to the mind and prevent their acceptance is absent. As is usual in states of great suggestibility the ideas and statements most easily accepted are those of a sorrowful and depressing nature.

The close relation between the hypnagogic state and hysterical and hypnotic conditions is easily seen. Not only do we in hysteria and allied conditions find the hypnagogic state to be unduly developed and prolonged, but the changes of consciousness seen in hysteria approach those of the hypnagogic state. Both are states in which consciousness is unusually feebly developed. In each of them in consequence the thoughts, feelings, memory-images that existed in the normal mind are many of them absent, while those that exist are less under the control of voluntary attention. In hysteria this may go on to the complete disintegration of the normal consciousness and to the formation, as we have described, of abnormal states of consciousness and so of personality.

There is another abnormality of consciousness closely allied to sleep which occurs, I believe, frequently in cases of hysteria and mental exhaustion, but which is not often noticed as it is mistaken for a faint or for an attack of *petit mal*. This is a temporary but complete loss of consciousness. It occurs usually without any warning and even while the patient is reading, talking, or walking. The attack may last from a few seconds, when it may pass unnoticed by companions, to many minutes. The loss of consciousness is absolutely complete; there is no possibility of rousing the attention until the attack has passed off, so it is impossible to wake the patient from an attack. At the same time the lower centres are more active than in normal sleep, as shown by the fact that an easy sitting position is often maintained. I have several times noticed that the patient may wake from one of these attacks in a condition of altered personality, as we noticed was the case with ordinary sleep.

I do not think that one is justified in labeling these attacks as *petit mal*. In my experience they occur in subjects in whom there is neither any personal nor any family history of epilepsy. They are never accompanied by any of the ordinary stigmata of epilepsy, as the cry, the emission of urine, or the biting of the tongue. They occur only in conditions of mental exhaustion and they totally disappear on the recovery of the normal mental health. They are not ordinary faints, as there is no change in the heart's action or circulatory disturbance of any kind. They are, I consider, merely the expression of an exhausted consciousness most nearly allied to the snatches of momentary sleep, "dog sleeps," of which we have all had experience when deprived of sleep for an unusually long time. Only in this condition as the exhaustion is abnormal so the lapses of consciousness are abnormal in their depth, and in them the threatened mental disintegration may be completed.

All the conditions touched upon above are characterised by a peculiar susceptibility to suggestion. Dreams are usually suggested by some external circumstance. Heavy bedclothes may produce a dream of fetters, a noise may suggest a battle or a storm. This suggestibility is the expression of the contracted or exhausted consciousness. Voluntary attention has failed, associated ideas are absent, so the ordinary judgments and correlations of ideas do not take place. This, of course, is normal in sleep and is only pathological when it becomes chronic. All these conditions seem to fit into one clinical picture beginning with the natural exhaustion of sleep and leading on to the pathological exhaustion of the post-epileptic, hysterical, and allied states.

The question now naturally arises as to whether there is any pathological condition common to these various states. In hysteria, I think, we invariably find an exceptionally feeble tone of the vaso-motor system. The blood-vessels react very slowly to any stimulus. The pupils are widely dilated. Red patches on the skin produced by pressure are very slow to disappear. The amount of urine passed may be at one time very much above, at another very much below, the average. The same phenomena are seen more markedly in post-epileptic conditions. This points to some irregular distribution of vaso-motor tone.

It seems probable that this irregularity in the calibre of the blood-vessels also affects the vessels of the brain. We now know that the blood-vessels of the brain possess vaso-motor nerves and such a supposition is by no means invalidated by the recent work of Dr. Leonard Hill since the total fluid contents of the brain need not vary. A study of the cerebral circulation in sleep, dreaming, and the half-awakened state gives weight to the view that in these states also there may be some irregular cerebral anæmia. There is a good deal of difference of opinion as to the state of the cerebral circulation during sleep. Some authorities consider that there may be some partial congestion. Mosso, on the other hand, believes that there is a state of anæmia at least of certain portions of the brain, the vessels dilating in dreaming or on partial awakening. In the hypnagogic state, the passage between sleeping and waking, the tone of the vessels must alter from that normal to sleep to that of waking. It is curious to note that anything calculated to restore quickly the vascular tone, as cold applied to the face and head, causes the hypnagogic state rapidly to disappear. It is only suggested that this may be a single pathological condition underlying these various states of exhaustion. We must suppose there are many others.

I have, of course, made no attempt to explain these strange conditions of changed and multiplied personality. I have merely tried to bring them, for purposes of study, into line with other simpler and more easily investigated states

and to show their relation to the phenomena of dreaming and sleep-waking. From these simpler states it is so much easier to pick out the thread which unites the whole.

Newcastle-upon-Tyne.

A NOTE ON

THROMBOSIS IN THE VEINS OF THE PELVIS AND LOWER EXTREMITIES AFTER OPERATIONS.

BY K. G. LENNANDER, HON. F.R.C.S. ENG.,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF UPSALA.

(Translated from the Swedish by I. Walker Hall, M.B. Vict., Senior Demonstrator of Physiology, Owens College, Manchester.)

SOME remarks of mine upon this subject appeared in the Upsala *Lakare Föreningz Förhandlingar* of January, 1899, and in the *Centralblatt für Chirurgie*, 1899. The results obtained during 18 months following July, 1897, led me to suggest that after every herniotomy or abdominal operation the patient's bed should be raised at its lower end some 10 to 50 centimetres (from 4 to 19 inches) in order mechanically to assist the venous blood flowing from the lower extremities towards the heart, and so preventing thrombosis. This could be best accomplished by placing square pieces of wood under the feet. By such means the change in the position of the body caused the blood to flow along a plane inclined towards the inferior vena cava, and if the shoulders were not raised equally so towards the right auricle. Such a raising of the bed must therefore also make the flow of the blood from the veins in the true pelvis and from the exterior genitals more rapid than in the horizontal position. When the blood-stream has reached the inferior vena cava it will certainly be impelled towards the heart by the negative pressure in the thorax at every inspiration. Since January, 1899, this procedure has been adopted up to date in my practice and no case of thrombosis in the pelvic or lower extremity veins has occurred during three years. As a rule the foot of the bed is raised from 15 to 30 centimetres (from six to 12 inches) but during convalescence it can be lowered to from 10 to 15 centimetres (from four to six inches), and the latter height ought to be maintained in many cases even when the patient has returned home. In cases of cardiac lesions or cardiac debility and in those of local venous changes the elevation is even more important. The elevation should then be from 25 to 40 or 50 centimetres (from 10 to 15 or 19 inches) for the first few days. Cardiac tonics, digitalis, camphor, strychnine, and subcutaneous or intravenous saline injections should be administered before and after narcosis in all cases of cardiac debility. With famished and emaciated patients subcutaneous injections may be given of from 500 to 1000 cubic centimetres (from 17 to 35 ounces) of solution of grape sugar (strength from 5 to 10 per cent.), as well as injections of olive oil, from 50 to 200 cubic centimetres (from one and a half to seven ounces) in 24 hours with from 2 to 3 per cent. of alcohol. The injections can be given in such a way that from 5 to 10 per cent. dextrose and from 2 to 3 per cent. alcohol may be added to normal saline solutions, but 10 per cent. dextrose solution causes pain during and after injection and shows a little sugar in the urine. It is equally important to suit the narcosis as far as possible to the patient's condition (viz., morphia, $CHCl_3$, ether combined with local anæsthesia, &c.) in order to maintain the circulation and in this way prevent thrombosis.

According to Ziegler thrombosis is caused (1) by slowing of the blood-stream, and (2) by local vascular changes. In laparotomy and hernia patients there are several conditions leading to slowing of the blood-stream and more particularly in the veins of the lower extremities. Many have weak hearts from long illness and are feeble almost to starvation point. Hence after the anæsthetic one often fears fatty degeneration of the cardiac muscle. Furthermore the circulation in the calf of the leg in weak patients may be almost stagnant from the continued supine position, and if there are any varicose veins (especially saccular, where the sacs communicate with the main vessel by narrow orifices) the blood readily stagnates. Laparotomy patients are also frequently troubled by more or less "meteorism" and each increased tension of the bowels increases the intra-abdominal pressure, diminishes the extent of inspiration, lowers the negative intra-thoracic pressure, and so lessens all the forces which promote the venous flow from the iliac veins to the right auricle.

Local vascular changes, phlebitis, fatty degeneration of the endothelium, &c., may be primarily local, or secondary to infective or autotoxic conditions. Primary vascular changes are always found in patients with varices and in those who have recently suffered from blood clotting. I believe that nothing predisposes more to thrombosis after operations than previous coagulation in the larger veins of the lower extremity or pelvis. Experimental and microscopical evidence points to the probability that a thrombus in circulating blood commences from deposits of the blood plates ("Blutplaettchen") on the vessel walls, between which a small or large number of leucocytes are found. This gathering together of small granules is called "conglutination" by Eberth. If the blood-stream is sufficiently slow coagulation may ensue from the fibrin ferment which is set free from the white blood corpuscles during the act of conglutination. As the result of this united conglutination and coagulation the vessel lumen is rapidly occluded. Distally the coagulation extends in the vessels to the nearest large branch, where the blood-stream is again free. Proximally the blood will also be clotted if the local circulation is sufficiently slow. Hence, we may find a thrombus extending very quickly from the foot all the way upwards through the crural to the iliac veins in a patient who at first only complains of pain in the calf.

In flowing blood fibrin ferment is very quickly destroyed, hence a rapid or normal circulation ensures such destruction. If we then wish to prevent the formation or spreading of a thrombus it is necessary to combat all causes of local stasis. For the pelvic and lower extremity veins the raising of the lower end of a patient's bed should be of considerable mechanical assistance in promoting the flow of blood towards the inferior vena cava and right auricle. The value of this aid may be increased and the patient made more comfortable by frequently altering his position in the bed, and lightly rubbing the feet and legs, provided that he has not already a thrombus. If any varices exist on the distal side of the operation wound in a lower extremity the part should be bandaged from the foot to such a point, the leg should be elevated, or, better, the bed should be raised. This procedure exerts a very much more noticeable influence upon the circulation. By its use I believe we may largely prevent thrombosis following surgical operations, parturition, and those diseases which are accompanied by intense anæmia and auto-intoxication, in which a tendency towards the complication of thrombosis exists.

I consider myself also entitled to ask physicians to use this suggestion of "bed elevation" for preventing thrombosis. Anæmic patients often rest and sleep better after such an arrangement of the bed. Patients with medium-sized varices on their feet or legs if their limbs have not been bandaged during the day often feel restless and tired with aching in their legs at bedtime and are consequently unable to sleep for several hours. For such persons an elevation of from eight or 12 to 15 centimetres (from three or four and a half to six inches) should be employed at night. After a few nights' experience of the position in question these patients will sleep better and the unpleasant sensations in their limbs will entirely disappear.

Upsala.

THE MEDICAL DEPARTMENT OF MCGILL UNIVERSITY.—Some $60,000 (£12,000) is now being expended in new class-rooms which are to be ready for the opening of the regular session in October. When the call to arms came for volunteers to serve the Empire in the South African campaign McGill University sent many of her students and not a few from the medical department. Two of these have met a soldier's death and now fill honoured soldiers' graves in that far south land—Mr. E. P. O'Reilly, son of Dr. O'Reilly of Hamilton, Ontario, and Lieutenant Border, the only son of Canada's Minister of Militia, himself an M.D. McGill can be consoled in her loss by the thought that her two sons have died fighting for Queen and Empire.

HEATSTROKE IN INDIA: AN EXAMINATION OF SOME STATISTICS RELATING THERETO.

BY W. J. BUCHANAN, B.A., M.B., D.P.H. DUB.,
MAJOR, I.M.S.; OFFICIAL STATISTICAL OFFICER TO THE GOVERNMENT OF INDIA IN THE MEDICAL DEPARTMENT.

THE purpose of this paper is not to discuss the whole question of the occurrence of heatstroke in India but rather to find out how far certain statements made in Dr. Sambon's article on "Sunstroke as an Infectious Disease" are borne out by an examination of the medical statistical records of the European army in India—statements which have proved so "infectious" that they have been repeated with but little discrimination in several recent publications dealing with the disease. The first criticism suggested by a perusal of Dr. Sambon's article is that one is somewhat at a loss to find out how from available records Dr. Sambon was able to discriminate between cases of syncope produced by heat and the more severe form of heatstroke to which he wishes to give the name "siriasis," a term which savours more of atmospheric influences than Dr. Sambon should care to countenance. It is easy to say that cases which do not seem to agree with one's theory "are only cases of syncope." In order to avoid this error in the following tables I have taken only fatal cases of heatstroke. Dr. Sambon says that in syncopal cases "immediate recovery is the rule," therefore we are safe in concluding that the fatal cases recorded in the following tables are examples of what he would call "siriasis," but which we prefer to call by the expressive and simpler name of "heatstroke." Dr. Sambon has fallen foul of the expression "heat-apoplexy," which, however, is the term sanctioned by the Royal College of Physicians of London in their "Nomenclature of Diseases," the use of which is officially enjoined for all medical statistical returns in India. Dr. Sambon may be assured that medical men in India do not confuse the cases they call heat-apoplexy with cerebral hæmorrhage or other such disease.

The statements of Dr. Sambon which will be here examined are as follows:—1. New arrivals are more liable to be attacked than natives or old residents ..... acclimatisation reduces the susceptibility to siriasis. 2. Siriasis is not always found in the warmest regions. 3. Siriasis prevails only in the "lowest regions," in "coast districts," or in the valleys of great rivers. 4. Its altitudinal range is even more restricted than that of yellow fever—this range is put down by Manson (p. 206) and by Allchin ("Manual of Medicine," vol. i., p. 13) as 600 feet. 5. It is prevalent in Lower Burma.

Taking the first statement we admit at once that Europeans newly arrived in India are more liable to be attacked by heatstroke than the natives of the country. It would be strange if it were otherwise; as Manson writes of the natives of tropical countries, "Their physiological activities are attuned by custom and habit to the conditions to which they were born." The following table shows to what an extent this is true.

TABLE I.—*Number of Admissions and Deaths from Heatstroke in Europeans in India and Natives.*

Year.	European army, average strength 68,000.		Native army, average strength 124,000.		Native prisoners, average strength 110,000.	
	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
1898 ...	369	79	31	11	122	40
1897 ...	257	51	32	11	103	52
1896 ...	268	49	46	26	110	41
1895 ...	143	60	34	12	71	37
Total	1057	239	143	60	406	170
—	Deaths per mille = 3·5.		Deaths per mille = 0·48.		Deaths per mille = 1·5.	

We now come to a consideration of the statement about new arrivals contrasted with old residents (Tables II., III., and IV.).

TABLE II.—*Heatstroke in Relation to Length of Residence in India. Deaths per 1000 of Strength.*

Year.	First and second year.	Third to fifth year.	Sixth to tenth year.	Eleventh to fifteenth year.	15 years and upwards.
1894	1·06	0·73	0·44	0·67	—
1893	0·40	0·38	0·63	—	—
1892	1·00	0·72	1·03	1·40	3·85
1891	1·74	0·59	0·43	1·81	3·27
Average*	1·02	0·61	0·63	0·99	1·68
Liability Percentage.					
1894	36	25	15	23	—
1893	28	27	45	—	—
1892	12	9	13	18	48
1891	22	7	5	23	42
Average*	21	12	13	20	34

* Averages calculated on average strengths yearly.

TABLE III.—*Heatstroke and Length of Residence. Deaths per 1000 of Strength.*

Year.	Under 1 year.	1 to 2 years.	2 to 3 years.	3 to 4 years.	4 to 5 years.	5 to 10 years.	10 years and over.
1895 ...	1·46	0·89	0·97	0·28	0·25	1·27	0·54
1896 ...	0·63	0·78	0·69	0·35	0·23	1·31	1·51
1897 ...	2·25	0·44	0·54	0·20	0·25	0·34	1·12
1898 ...	0·87	1·69	1·17	0·63	1·16	1·49	1·55
Average...	1·31	0·94	0·84	0·36	0·46	1·12	1·19
Liability Percentage.							
1895 ...	26	16	17	5	4	22	10
1896 ...	11	14	13	6	4	24	27
1897 ...	44	9	11	4	5	7	22
1898 ...	10	20	14	7	14	17	18
Average...	21	15	14	6	7	18	19

TABLE IV.—*Heatstroke in Relation to Age. Deaths per 1000 of Strength.*

Year.	Under 20 years.	20 to 25 years.	25 to 30 years.	30 to 35 years.	35 to 40 years.	40 years and upwards.
1898	0·47	1·10	1·00	1·71	4·24	4·89
1897	—	0·82	0·60	1·16	—	2·49
1896	—	0·53	0·58	1·96	2·75	5·26
1895	—	0·84	0·76	1·88	2·20	—
Average	0·13	0·82	0·73	1·69	2·34	3·14

	Liability		*Percentage.*			
1898	4	8	7	13	32	36
1897	—	16	12	23	—	49
1896	—	5	5	18	25	47
1895	—	15	13	33	39	—
Average	1	9	8	19	26	35

The above tables show that Dr. Sambon's statement contains only part of the truth, and baldly stated as above it is certainly misleading. The tables give the ratio per mille mortality of the disease for eight years, they cannot be grouped in one table owing to an alteration in the headings. In both tables, however, we find that new arrivals do suffer more than others, but this is only part of the truth, for it is shown that this liability decreases for a few years following the first, and then more or less steadily increases in proportion to the length of residence in India.

There is no need here to invoke the analogy of other diseases, the explanation is simple enough. It will be admitted by everyone who has lived any length of time in the tropics that recklessness and carelessness are characteristic of the new arrival in any hot country. Again to quote Manson: "The new arrival in the tropics does not think much of exposing himself to the sun, the rain, and the wind, the old resident is very chary of going out without his sun-hat and his white umbrella. ..... The new-comer may look upon these precautions as signs of effeminacy. They are not so. Experience has told the old resident that neglect means an attack of fever. ..... The new-comer sits up late, eats, drinks, and smokes as in Europe; the old resident goes to bed betimes and eats, drinks, and smokes in moderation. ..... To a great extent acclimatisation means experience, education, an intelligent adaptation of habits." These remarks apply with much force to the new-comer in his relation to exposure to the sun or great heat, and this carelessness is to a large extent sufficient to account for the greater liability of new-comers to attacks produced by the sun or heat. During the next few years the young man grows wiser, there is no acclimatisation but there is experience; nevertheless, the sun does not spare him altogether, and as he grows older, in spite of precautions, he seems to become more and more liable to the effects of heat till his percentage liability becomes at least equal to that of the first years of his inexperience. This, at least, the above tables seem to indicate, but bearing in mind the fact that the number of soldiers of the British army in India at the higher ages is considerably less than at the younger ages I do not put the case stronger than this. The per mille ratios quoted would bear a stronger statement than this, but ratios dealing with large numbers cannot with complete accuracy be compared with ratios based on small numbers, though to avoid this fallacy I have taken figures for eight years. Therefore, instead of Dr. Sambon's statement quoted above, these tables show that new-comers and old residents are the most liable to the effects of great and prolonged heat, whilst Europeans are at their best in resisting these influences in the intermediate years of their residence in India. It may also be added that M. Brault in his newly published volume, "Maladies des Pays Chauds," thinks the early years the least dangerous; he writes: "Sans doute les deux premiers étés passés sous les climats chauds sont les moins pénibles." M. Brault mentions, but does not accept, the "infectious" theory.

Dr. Sambon's next statement to be considered is that siriasis is "not always to be found in the warmest regions." Always remembering the great importance of the predisposing causes in the production of heatstroke I am inclined to challenge Dr. Sambon's statement as regards the warmest regions, although it is not clear what he means by the expression "warmest." Most decidedly it can be shown that where the heat is the fiercest and the most continuous it is there that we find heatstroke most prevalent and most fatal.[1]

The following table (Table V.) gives the death-ratios from heat-stroke in the 12 geographical groups into which India is divided for the purposes of medical statistics. I purposely chose to consider fatal cases only and therefore, as said above, presumably cases of what Dr. Sambon would call "siriasis."

TABLE V.—*Heatstroke in Relation to Geographical Groups in India. Death-rates for Four Years per 1000 of Strength (European Troops).*

Year.	I. Burma Coast and Bay Islands.	II.* Burma Inland.	IV. Bengal and Orissa.	V. Gangetic Plain and Chutia Nagpur.	VI. Upper Sub-Himalaya.	VII. North-west Frontier, Indus Valley, and North-west Rajputana.
1898	—	0·38	0·84	1·35	2·04	4·22
1897	0·83	0·37	0·88	1·17	0·81	0·60
1896	—	0·37	0·41	1·20	1·18	1·86
1895	0·81	—	0·88	0·42	0·16	3·47
Average†	0·40	0·28	0·75	1·03	1·23	2·52
Order of prevalence	8	9	5	4	3	1

Year.	VIII. South-east Rajputana, Central India, and Gujerat.	IX. Deccan.	X. Western Coast.	XI. Southern India.	XII.*a* Hill stations.	XII.*b* Hill convalescent depôts and sanitaria.	India.
1898	1·16	0·12	0·66	1·14	—	0·32	1·17
1897	1·79	0·68	—	0·63	0·28	—	0·91
1896	1·09	0·30	—	—	—	—	0·70
1895	1·42	0·62	—	0·53	—	—	0·84
Average†	1·36	0·43	0·16	0·57	0·06	0·01	0·90
Order of prevalence	2	7	10	6	11	12	—

* Column III. is omitted as there are no European troops in Assam.
† Averages calculated on actual cases and annual strengths.

Anyone who has lived in India will admit that for downright fierceness of the summer heat night and day no part of India is less tolerable than the North-west Frontier, the Punjab, and Sindh, and here it is that, as the above tables show, there is the greatest mortality from heatstroke. Those who have lived in Attock, Nowshera, Hyderabad (Sindh), or Peshawur in the hot weather will bear witness to the fierceness of the heat, which lasts from May till October, scarcely interrupted by the onset of the monsoon in the end of June. Next for high mortality comes the group which comprises South-east Rajputana, Gujerat, and Central India, closely followed by the upper sub-Himalayan group and then that of the Gangetic Plains. When it is remembered that these groups contain the following stations it is scarcely necessary to say more about the heat—viz., Lahore, Sialkot, Amritzur, Allahabad, Muttra, Lucknow, Cawnpur, Benares, Deesa, Ahmedabad, Jhansi, Indore, and Agra. Next on the mortality list we find Bengal and Orissa, with a distinctly lower rate per mille. The heat in Bengal and Orissa is certainly trying, but it is broken by the rains early in June; the fierce heat is not so continuous or so prolonged, the nights are somewhat cooler, and we find, consequently, a lower death-rate from this affection. Next to Bengal and Orissa we find Southern India with the following stations—Madras, St. Thomas's Mount, and Pallavarum, all close to the sea-coast, and Bellary (1483 feet) and Bangalore, 3021 feet above sea-level. Still lower on the list we find the high land known as the Deccan, with most of its stations over 1000 feet high—viz., Kirkee, 1837 feet; Poona, 1909; Satara, 2185; Belgaum, 2473; Secunderabad, 1752; Jubbalpur, 1306; Saugor, 1753; and Kamptee, 941 feet. Below this, again, comes the group consisting of the coast of Burma and the Bay Islands; here the mortality ratio falls to 0·40 per mille or one-sixth of that

[1] The following remark from an editorial article in the *Medical Review* of May, 1900, is worth quoting: "By diverting attention from the means by which siriasis may be to a great extent prevented in the army and by which many valuable lives may be saved the infectious theory is calculated to do a great deal of harm."

of Group I. On the Burma coast and in the Andaman Islands the heat is tempered by the sea-breezes and the rains come early and heavy. Still lower comes Inland Burma, with its damp relaxing climate. The stations on the West Coast show a still lower rate; they are Bombay, Cannamore, Calicut, and the small station of Mallapuram, close to the Shivarai Hills. The Hill stations, of course, show a still smaller rate. The above table therefore shows that heatstroke is the most fatal where the heat is fiercest and most continuous night and day. The same tables also dispose of Dr. Sambon's other statement that siriasis only prevails in "the lowest regions and coast districts." As a matter of fact, the lowest regions are the Burma coast, the Bay Islands, and the West Coast, and it is exactly here that the very lowest ratios for heatstroke are obtained.

I now come to Dr. Sambon's statement about the restricted altitudinal range of heatstroke, which the other writers have arbitrarily fixed at 600 feet. Turning again to Table V. we find that in the group which heads the list for mortality the worst two stations are Peshawur and Nowshera, with the heights above sea level of 1165 and 1100 feet respectively. In the next group we have the following stations, considerably above 600 feet—viz., Mhow, 1903; Indore, 1806; Nowgong, 770; Jhansi, 860; Nasirabad, 1461; and Neemuch, 1461 feet. In Group VI. which comes third on the list we have Attock, 891 feet; Campbellpur, 1200; Delhi, 715; Rawulpindi, 1707; and Roorkee, 884 feet. Taking as low as fourth place on the mortality list we meet the group of the Gangetic Plain with its stations under 600 feet. On the other hand, when we take the groups with the lowest elevations—viz., the coast towns of Burma, the Bay Islands, and the West Coast—we find all the towns have elevations little removed from the sea-level, and here we find the very lowest ratios for this disease. This shows the absurdity of laying down a law limiting the disease by an arbitrary level like 600 feet. In fact, the influence of height has little effect *per se* till we reach levels where elevation is combined with coolness of the atmosphere as in the hill stations, most of which are well over 5000 feet above sea-level.

It has already been shown that the incidence of fatal cases of heatstroke is greatest in those parts of India where the night and day heat is fiercest and most continuous;[2] it can also be shown that the disease is by far the most prevalent in the months when the heat is greatest. The following table (Table VI.) gives the monthly distribution of heatstroke cases in the European army of India for seven years, 1888-94.

TABLE VI.—*Monthly Distribution of Heatstroke cases in the European Army in India (for seven years).*

Year.	January.	February.	March.	April.	May.	June.	July.
1894	1	1	1	3	35	81	27
1893	—	1	1	2	17	35	13
1892	1	1	8	5	29	72	84
1891	—	1	3	5	35	56	93
1890	—	—	3	15	18	63	11
1889	1	1	5	16	30	102	44
1888	1	4	6	9	26	74	42
Total ...	4	9	27	55	190	483	314

Year.	August.	September.	October.	November.	December.
1894	25	15	5	1	2
1893	37	7	7	2	—
1892	13	5	4	—	1
1891	20	6	6	2	1
1890	4	7	3	—	3
1889	11	16	2	—	2
1888	25	22	6	1	2
Total ...	135	78	33	6	11

N.B.—The annual reports of the Sanitary Commissioner only give the monthly distribution of heatstroke for the above seven years.

[2] In 1896 the "mean maximum" heat recorded was greatest in geographical groups No. VII. and No. VIII. of Table V., and in these areas the table shows the highest ratio for heatstroke (*Indian Weather Review* for 1898).

From this table it is seen that the following cases occurred month by month—January 4 cases, February 9 cases, March 27 cases, April 55 cases, May 190 cases, June 483 cases, July 314 cases, August 135 cases, September 78 cases, October 33 cases, November 6 cases, and December 11 cases. Here, again, is clearly seen the predominating influence of great heat in the incidence of this disease. The cases reach their lowest level in the coldest months and rise steadily and progressively through the hot months of April and May till they culminate in the truly fierce and extremely oppressive heat of June, in the dreaded period before the bursting of the monsoon rains, which as they spread steadily from the sea-coasts bring a refreshing coolness to all the land. In July and August, as the rains spread further inland and the temperature falls, the number of heatstroke cases gets gradually less till they reach a very low minimum in the delightful cold-weather months.

I have shown that the statistics of the British army in India show that heatstroke is most fatal and most prevalent where the heat is greatest and most oppressive and at the time of year when these influences are at their maximum. It will require much more evidence than has yet been produced to make those who have had experience of the disease in India accept a microbial or any other cause which seeks to minimise the great and predominating influence of fierce and continuous heat. While looking upon heat as the most important factor we must also bear in mind the great influence of the usually mentioned predisposing causes, as age, length of residence in the tropics, occupation, exposure, unsuitable clothing (as the tight-buttoned and belted uniform of soldiers), intemperance (perhaps especially beer-drinking), over-fatigue and overcrowding, want of ventilation, and previous illnesses.

Simla.

POISONING BY CARBON MONOXIDE.

BY C. R. ELGOOD, M.D. LOND.

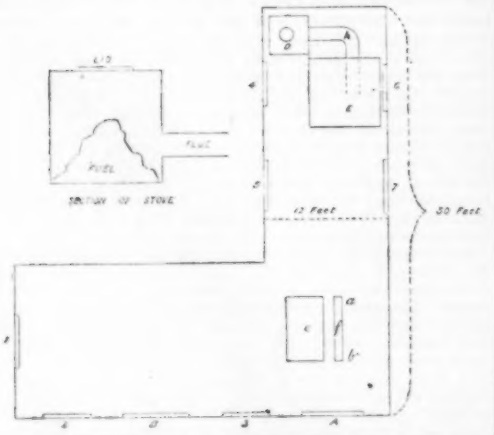
TWO women, aged 58 years and 31 years respectively, inmates of a workhouse, were at work in a large laundry provided with a stove and a good-sized hot-air chamber for drying clothes. At 6.45 in the evening another woman on entering the room found them both lying on the floor near one end of the room about four feet from a closed door leading into an airy wash-house. In both cases the bowels had acted involuntarily. The women were found lying close to each other at the foot of a form in front of a long table. The elder woman had her feet on the form on which it appeared that she had been sitting and she was covered with vomit. A nurse who was summoned found her completely stiff all over. Her arms were drawn up and her eyes were fixed and looked strange. The nurse sprinkled her with cold water and removed her from the room, when she became very sick and apparently revived. On my arrival, at 7.45 P.M., I found the patient in a bed in the infirmary. She was not breathing, there was no pulse, and no cardiac sounds could be heard with the stethoscope. There was, however, a good colour in her lips and face; so much was this the case that in spite of the fact that the woman had not been observed to breathe since she was found an hour before, artificial respiration was resorted to and was kept up for some considerable time until its obvious uselessness was apparent to all, for she never gave a gasp.

The younger woman was at the time of my visit lying in the next bed to the other; she was groaning and crying and at the same time opening her eyes widely and staring wildly round. The pupils were fully dilated and insensible to light, though they reacted in a quarter of an hour after. The breathing was noisy, rapid, and panting in character, 10 or 12 respirations following each other quickly in succession and then ceasing for a few seconds, but there was no regular cycle. No pulse could be felt at the wrist and no cardiac impulse was perceptible. There was present a rapid semiflexion and pronation of both forearms by which means the hands were brought together as if for the purpose of rubbing them. It was quite a coördinated movement and one apparently accompanying the return to consciousness. In a quarter of an hour the patient became much more conscious. She was very excited and seemed frightened and complained of pain in the head. In another

quarter of an hour a faint pulse was perceptible at the wrist. The treatment which was employed comprised friction to the limbs and cardiac region and hot coffee and enemata of brandy and milk were administered. The next day she was much better. Her pulse, however, was still small and weak and it was also irregular and intermittent. The woman was perfectly conscious and rational and gave the following account of the occurrence. As far as she remembered, she said, the first thing she noticed to be wrong was a "swimmy" feeling in the head, and she sat down on the form with her companion. After this she remembered nothing till she saw the medical officer by the side of her bed. She also stated that she had closed the windows in order that the master might not see the fire which, as subsequently transpired, the women had augmented for the purpose of cooking some potatoes which were placed on the lid of the stove. She made a rapid recovery.

The body of the elder woman was removed to the mortuary on the same evening as that on which the death had occurred. The corpse was the occasion of a good deal of uneasiness to the nurse who had to "lay it out," for, from the appearance of the body, she could not bring herself to believe that the woman was actually dead. There was no rigor mortis at 10 P.M. on that evening, but it was well marked at noon on the next day. The post-mortem examination was made about 40 hours after death, when rigor mortis had not passed off. The body was well nourished and very fat, and the face had a remarkably fresh appearance. Over the areas where hypostatic lividity is usually present a bright rose-red colouration was seen, in many cases spreading upwards in patches—e.g., on the back of the forearms and cheeks. On opening the body the blood appeared to be brighter than normal and all the organs were of a brighter colour than is usual. The intestines were still warm. The walls of the heart were thin and there was a good deal of fat around them. The cavities of the heart were empty. The valves and large vessels were healthy and there was no sign of a clot anywhere. The right lung was half the size of the left, the parietal and visceral layers of the pleura on this side being connected by old adhesions in the neighbourhood of the diaphragm and posterior thoracic wall. On section the lower and back parts of this lung were seen to be dark in colour and of firmer consistence than is usually found. The tissue, however, was everywhere crepitant and it floated in water. The left lung was of normal size and on section its colour was seen to be somewhat darker than usual, but otherwise it was healthy. The spleen was very friable and was gorged with blood. The kidneys were healthy. They exhibited the rose-red colouration more than any other organ. The other organs were all normal. The blood was everywhere fluid and no clot was seen at all.

The room in which the accident happened was quite 14 feet in height. It was of the shape of a reversed letter L, each limb measuring about 30 feet by 12 feet, and there was a stove for heating the drying apparatus in a recess in a corner below the level of the floor. On entering the room on the same evening the blue flames of carbonic oxide could be seen issuing from between the lid and the top of the stove. The air was very hot and oppressive, but was not unbearable for a time. The plan appended, which is copied from one made at the time, may help to explain the shape of the room and the position of the two women. On looking into the stove (over which there was an opening in the roof about a foot square) when it was empty it was seen that the exit pipe was placed rather nearer the bottom than the top, so that there was plenty of room to pile up fuel above its level, thus blocking up the flue and sending the fumes into the room instead of up the pipe. As it transpired from the evidence which was given at the inquest that a big fire had been made up it was concluded that this was the cause of the accident.



A, Door leading to wash-house. B, Door leading to quadrangle. 1, 2, 3 Casement windows, four feet from ground, all closed but opening easily. 4, 5, 6, 7, Ventilating windows, six feet from ground, also closed. D, Stove. E, Drying chamber. h, Hot air pipe. a, Position of body of the elder woman. b, Position of body of the younger woman. c, Table at which the two women were sitting. f, Form.

The fumes given off by the smothered combustion of coke vary according to the quality of the fuel. As a general rule, one expects to find, in addition to carbonic oxide and carbonic acid, sulphurous acid, sulphuretted hydrogen, light carburetted hydrogen, and olefiant gas.[1] The four latter gases, however, are so irritating to the lungs and so perceptible to smell that they seldom or never cause poisoning by themselves, but frequently even prevent the first two gases from producing ill effects, for the obvious reason that they give warning of danger. In this case there was no smell of gas in the room when I entered it, though the flames of carbonic oxide could be seen burning in the stove, and it is certain that no warning smell was appreciated by the two women. We may, therefore, conclude that carbonic oxide or carbonic acid or both were accountable for the catastrophe. These two gases, though their separate action on the body is so diverse, seem to help one another greatly in producing fatal effects. It is known that it takes 10 per cent. of carbonic acid alone to destroy life, and 5 per cent. of carbonic oxide in the atmosphere has a similar result; but if the two are combined, as little as a half per cent. of carbonic oxide with 5 per cent. of carbonic acid is a fatal dose,[2] and from the appearances then noted after death it would seem that the carbonic oxide plays the principal part.

The classical symptoms ascribed in the text-books to charcoal vapour (which may be considered as carbonic oxide, carbonic acid, aqueous vapour, and impure air)[3] are headache, pulsation in the temples, giddiness, vertigo, nausea, vomiting, convulsions, great prostration, and cardiac weakness, drowsiness, insensibility, and coma. Judging from the two cases just related and the comparative frequency with which I have found the symptom recorded in reported cases, I think that the involuntary expulsion of fæces may be added to this list. There is no doubt, too, that the poison has a powerful action on the central nervous system. Dr. Alexander Scott[4] describes a condition of mental weakness of long standing in a case under his care as illustrating the length of time that the brain retains the poison. The periodicity not infrequently observed in the symptoms as the patient regains consciousness points, I think, in the same direction. On more than one occasion a fall of body temperature has been noticed in those poisoned by carbonic oxide.[5] Of the remaining symptoms the subjective ones of pulsation in the temples and nausea were the only ones not elicited in the cases described. An illustration, too, is afforded of the insidious nature of the poison so often noticed as evidenced by the absence of any effort to escape. In this case both the women who were affected were lying close to the door which, as old inmates, they well knew led to the wash-house and fresh air.

In this connexion we cannot resist referring to the graphic account of wholesale poisoning by carbonic oxide which occurred in the disaster at the Snaefell mine as given by Dr. A. E. Miller.[6] A rescuing party was overtaken by the gas—which it was subsequently found was caused by some smouldering timber supports—and one of their number (Dr. Le Neve Foster) kept writing a description of his sensations as long as his pencil would trace words. He wrote:

[1] Taylor and Stevenson's Principles and Practice of Medical Jurisprudence, vol. ii., p. 112.
[2] Bernard: Substances Toxiques, p. 212.
[3] Taylor and Stevenson: loc. cit., p. 104.
[4] THE LANCET, Jan. 25th, 1896, p. 217.
[5] Brit. Med. Jour., vol. ii., 1895, p. 1514.
[6] Ibid., vol. ii., 1898, p. 32.

"We all sat without moving or trying to escape. The foot of the ladder was close by, yet none of us made any effort to go to it and ascend even a single rung. We none of us tried to walk a dozen steps which would have led us to the other side of the shaft partition where we all knew there was a current of better air." The same paper alludes to the remarkably fresh and life-like appearance of the corpses as they were brought to the surface, and what is still more interesting, as it bears somewhat on the treatment, we read that as soon as a warning was given that there was foul air about there was a rush among the men for the ladders and a general climbing commenced. It was soon observed that of these men, who were really poisoned before they knew it, only the elder ones got up to the top, and nearly all those "well under 30" fell down and were recovered afterwards only when they were dead. This Dr. Miller ascribed to cardiac failure consequent on the greater exertion made by the younger men to escape, it being conjectured that the elder ones took matters more leisurely and so put less strain on their heart muscles. It appears to me that, though this explanation may not appeal to all, its important bearing upon treatment seems to lie in the consideration as to whether continued vigorous efforts at artificial respiration may not by exhausting a semi-exposed patient do more harm than good.

The symptom of convulsive rigidity which was present in the only one of these two women who was found alive is so commonly stated to be present that it calls for a little remark. These spasms have been supposed to be asphyxial in their nature. They have been mostly observed to affect the extensors of the trunk and the flexors of the limbs, for in asphyxia, as Sir T. Lauder Brunton has shown, these groups of muscles overcome their antagonists and thus opisthotonos and flexion of the limbs are produced.[7] It will be remembered that the arms of the younger woman were described by the nurse as "stiff and drawn up." Whether this be the correct interpretation of the symptom or not it is well to recollect that at least two gases are present in poisoning by coke or charcoal vapour, and it is quite possible that some of the symptoms we find may be produced by either gas acting separately.

I have only been able to find one case of poisoning by the pure gas carbonic oxide. This is recorded in an old edition of Beck's Medical Jurisprudence.[8] A man at Dublin inhaled the gas for an experiment and was nearly killed. In him the poison certainly acted promptly on the central nervous system and the heart, for total insensibility and lifelessness came on at once and lasted half an hour. On introducing oxygen gas into the lungs he recovered with convulsive agitation and quick and irregular pulsation, and for some time after recovery total blindness, sickness, and vertigo were present.

One would imagine from *à priori* reasoning that as carbonic oxide forms such a stable compound with hæmoglobin there is but little chance of setting free this combined hæmoglobin, and that the only method of treatment would be to remove some of it and inject fresh into the system. And this experience fully proves to be the case. A case is related where a man was saved by this means after being in an apparently hopeless state for 48 hours.[9] He was bled to 800 grammes, and 110 grammes of defibrinated blood were injected. The record of successes is certainly not so large as one would hope. In 1885, 23 cases were collected in which transfusion had been resorted to. Recovery had ensued in eight.[10] We are not told, however, whether the blood was defibrinated in every case, nor even whether blood was used in every instance; for I note that Halstead of New York[11] has stated that saline injections are equally serviceable in the case of animals poisoned by carbonic oxide. Although he quotes Kühne as an authority for his statement, one is at a loss to understand by what means such a proceeding would be likely to do good.

I have already alluded to the possible harm that might result from the prolonged use of artificial respiration. Alone it certainly seems to be but of little use, but with the aid of such adjuncts as the inhalation of oxygen, slapping and friction over the cardiac region, and faradaisation of the phrenics it has proved of great service. The fall of temperature has suggested the use of the hot bath, and certainly the external application of warmth and the avoidance of undue exposure of the body while artificial respiration is being carried on are things to be most carefully attended to.

It has been kindly pointed out to me by Dr. E. Casey that no allusion to this subject of carbonic oxide poisoning is complete without a reference to the growing use of so-called "water-gas" as an illuminant. True water-gas, or the gas produced by the action of steam upon carbon, consists of about equal volumes of hydrogen and carbonic oxide with small quantities of nitrogen and carbonic acid.[12] This, of course, would not be of much use for illuminating purposes. The term, however, is very loosely applied and generally includes gaseous mixtures used for illumination which are distinguished from coal gas by the large quantity of carbonic oxide they contain. The main point is that the high percentage of carbonic oxide usually entails a loss of the characteristic odour of illuminating gas and hence the great danger arising from an escape of water-gas into a bedroom during the night. Water-gas as used for illuminating is said usually to contain about 30 per cent. of carbonic oxide while ordinary coal gas contains only 7 per cent. of carbonic oxide.[13] Since the introduction of water-gas into New York the deaths from burner escapes are said to have increased tenfold and in one State of America a law has been introduced limiting the percentage of carbonic oxide to 10 per cent.[14]

Windsor.

[7] THE LANCET, Jan. 25th, 1896, p. 217.
[8] T. K. Beck and J. B. Beck: Elements of Medical Jurisprudence, London, 1836, p. 90.
[9] Annales d'Hygiène, tome ii., 1843, p. 1155.
[10] Brit. Med. Jour., vol. i., 1888, p. 1185.
[11] Medical Times and Gazette, vol. i., 1884, p. 508.
[12] Thorpe's Dictionary of Applied Chemistry.
[13] Asclepiad, 1885, p. 287.
[14] Ibid.

GENERAL NERVOUS SHOCK, IMMEDIATE AND REMOTE, AFTER GUNSHOT AND SHELL INJURIES IN THE SOUTH AFRICAN CAMPAIGN.

BY MORGAN I. FINUCANE, M.R.C.S. ENG., L.S.A.,
CIVIL SURGEON ATTACHED TO THE CONNAUGHT HOSPITAL, NORTH CAMP, ALDERSHOT.

THE following notes of nine cases—out of a total of over 60 cases seen during the past two and a half months—with similar symptoms affecting the nervous system sufficiently illustrate some of the results, immediate and remote, which have been noticed as occurring in soldiers invalided home from the front. It is likely that in the near future the country will be deprived of a large number of our most capable and experienced men if the cases continue to occur in such frequency.

CASE 1.—At Colenso on Dec. 15th, 1899, Corporal —— was in the firing line when a bullet struck him in the left ear, entering the external auditory canal, rupturing the membrana tympana, and lodging in the mastoid process. A Mauser bullet was extracted from behind the ear at Pietermaritzburg Hospital, it being deeply imbedded in the bone, six days later. The patient was unconscious for six hours after the injury; he vomited, and blood escaped from the ear, the nose, and the mouth. Some loss of power down the left side was experienced for a month after. The wound healed well, the patient recovering power of the left side, but he still remains deaf in the left ear, with continual noises.

Present condition.—The patient is a thin and pale man with an anxious, careworn expression; he is only 32 years of age but looks older. His movements are slow and laboured. His body surface is cold and there is want of general muscular tone. There is a small, almost imperceptible, scar behind the left ear, over the mastoid process. The external auditory canal is normal in appearance; the membrana tympanum is gone, but no other abnormal appearance can be detected in the middle ear. He is somewhat deaf in this ear, but nothing very marked. He complains of giddiness, languor, and inability for sustained exertion of body or mind. His memory is bad and is getting worse; he is nervous and shaky, easily upset and put out, he suffers from sleeplessness at times, and his vision is dim with constant noises and lightness of head. The muscle movements are slow and impaired and he has continuously suffered with headache since the injury and in spite of every care is steadily losing weight.

CASE 2.—At Spion Kop a private of the 2nd Battalion King's Own Royal Lancashire Regiment, aged 24 years, was wounded in the left ankle, injuring the fibula and traversing the limb, and making its exit behind the tendo-Achillis. The aperture of entry was larger than that of exit. The injury was sustained whilst reinforcing the firing line. A comrade removed his boot and sock and applied the first and final dressing. The patient made an uninterrupted recovery after one month of the local injury.

Present condition.—Beyond some impairment of muscle movements on the plantar surface of the foot and slight stiffness around the ankle the local symptoms around the seat of injury are *nil;* there is wasting of muscles of both legs and impaired movements. There are areas of hyperæsthesia and anæsthesia and muscle reflexes are much exaggerated in both limbs; there are tremors of muscles and night twitchings of muscles of the chest and upper extremity. The patient feels very unsteady and shaky, with noises in the head and giddiness. His memory is bad and failing. The patient suffered from nerve shock and panic at Spion Kop before being wounded owing to the alarming character of the surroundings.

CASE 3.—At Colenso on Dec. 15th a private of the 2nd Queen's Regiment was wounded in the left groin with a Mauser bullet over the kidney, traversing the abdominal cavity, causing subsequent hæmaturia and peritonitis, and travelling along the inside of the right thigh and becoming lodged on the under and inner surface of the right patella, whence the bullet was removed 14 days later. The loin wound healed in 10 days and the incised wound near the patella healed rapidly after extraction of the bullet. The injury was sustained while lying down with the right leg raised.

Present condition.—The patient complains of abdominal pain and pain in the legs and general weakness; he is incapable of continued exertion, bodily or mental. Formerly he was a smart soldier. The pains do not follow the course of any nerve trunks, and a general nervousness and weakness are noted of the upper as of the lower extremities. The patient is pale and thin with general vaso-motor impairment, and his circulation is sluggish. His age is 27 years.

CASE 4.—At Colenso on Dec. 15th a private of the 2nd Royal West Surrey Regiment whilst in the firing line was knocked senseless by the explosion in close proximity of a nine-inch shell. The patient was not actually hit by a portion of the shell, but by the turning up of the ground. Subsequently the patient had partial loss of power down the right side in South Africa, which afterwards got better, but since coming home on July 7th he has had another attack of unconsciousness accompanied with some loss of power more noticeable on the right side.

Present condition.—There is distinct loss of power on both sides of the body. The patient is very nervous and shaky, suffering from twitching and especially over the right side, giddiness, noises in the head, dimness of sight, and some deafness. The skin is cold and the muscles are soft and flabby; the reflexes are exaggerated with tremors of the hands and tongue. A general condition of neurasthenia is noted.

CASE 5.—At Spion Kop on Jan. 21st a private was in the firing line when he was shot in the left temporal bone, rupturing the tympanum and passing through the mastoid process. He was unconscious, but made a good recovery from the immediate effects.

Present condition.—The patient is now thin and nervous, with distinct loss of power in the upper part of the body. This is general evidence of vaso-motor impairment of the skin, muscles, and subcutaneous tissues. He has vertigo, headaches, flushing, and periods of stupidness and unconsciousness. His memory is bad and is getting worse. The patient describes his nerve break-down as due to shock and panic at Spion Kop, even before receiving his wound, as the result of heavy shell-fire and rifle-fire from the Boers, who were invisible and well under cover whilst the English troops were freely exposed. The patient is only 28 years old.

CASE 6.—At Spion Kop a private was wounded in the right thigh with a Mauser bullet. The wound occluded by a first and final dressing and the patient made a rapid recovery from the local wound.

Present condition.—The patient has weakness, pain, and tremors in the muscles of the back and both lower limbs. His gait is unsteady and he is incapable of sustained or arduous exertion. There is no apparent loss of power. The apertures of entry and exit have healed, showing only small scars. The body-surface is cold and there is want of muscular tone. He is in a dull, lethargic mental state.

CASE 7.—A private was wounded at Colenso on Dec. 15th in the abdomen and thigh with a Mauser bullet, escaping the abdominal cavity, since which date he has had constant lightning pains in the legs and shooting into the loins and he is now quite unable to do duty.

Present condition.—The patient has pain, hyperæsthesia, and tenderness over the superficial and deep nerve trunks. His movements are impaired and painful. The gait is unsteady. The scars of the bullet wounds are quite healed. There is general unsteadiness of speech with restlessness. The patient's age is 27 years.

CASE 8.—A private was wounded at Slingersfontein on Feb. 12th in eight places—the hip and back, the right leg and the left arm—the bullets traversing structures and the wounds healing rapidly, since which date he has suffered from general weakness.

Present condition.—The patient has general tremors of most muscles of the trunk and loss of muscle tone. The surface of the body is cold. The patient's speech is slow and hesitating and he is very nervous and shaky, and unfit for long-continued mental or bodily exertion.

CASE 9.—At Spion Kop on Jan. 24th a private was wounded in the right foot with a Mauser bullet and sprained his left ankle in falling. The bullet wound did well.

Present condition.—The patient has loss of power and general tremors of both legs and lightning pains shooting up both legs and into the spine, especially the left leg. The patient is scarcely able to walk. There are twitchings and tremors about the face, which has an anxious and pinched appearance. He sleeps little owing to night pain. The muscles of the lower extremities are wasted and reaction of degeneration is noticed. There is some tenderness along the course of the great nerves.

Remarks.—The most noticeable features in our large military hospitals at present to be seen amongst South African invalids sent home for gunshot injuries are the almost total want of further surgical interference required, or any marked deformity, and the trivial nature of the entrance and exit apertures produced by the Mauser rifle bullet. In all the cases coming under my care I have had none in which the bullet-wounds were not healed, and although in many cases these were very numerous they have produced little or no deformity. The number of cases of injury from shell-wounds have been proportionately very small. The apertures of entry and exit of bullet-wounds in most cases are of a similar size and the scar is markedly small with no evidence of previous laceration or contusion of surrounding parts. The history of most of these patients immediately after the wounds is that of rapid healing by first intention with little or no suppuration; from inquiries made of patients the practice of antiseptic occlusion by first and final field dressings—whether that be on the field or in the field hospital—being responsible for the rapid healing and entirely successful results of the wounds themselves. Nearly all the cases observed had been subcutaneous flesh wounds, escaping or uninjuring bones and joints in the most marvellous way, although traversing tissues and cavities in close proximity to both. The lodgment of bullets in the soft or bony parts or in the cavities, necessitating removal, is an extremely rare occurrence, due, I take it, to the high velocity and shape of the projectile. The only cases I have seen here were lodged fragments from an exploded shell.

The clinical fact of most interest undoubtedly is the large number of cases of functional impairment of nerve sense and motor power, associated with psychical symptoms akin to nervous shock or those observed after railway accidents. These nerve symptoms do not bear any ratio to the extent or size of the wounds inflicted, but have been noted by me as being more common in injuries of the lower extremities and the head, and in cases that look originally to be not severe. The implication of nerves or their sheaths is not a marked feature and in most instances there is no local evidence of the bullet or its course having been near the track of a nerve. The effects are of sufficient importance to the military authorities and to the profession generally by reason of the necessity there is at present, and probably will be in the future, before the campaign in South Africa is concluded, of invaliding a large body of our best and most seasoned and experienced soldiers out of the service as unfitted for future service as soldiers, thus denuding our army of these experienced and gallant men. A large number of such cases have come before me, where after six months' or shorter periods of complete rest and every

care, the patient's nervous system shows no signs of recovering its former steadiness and there is nothing for it but to invalid them out of the service as permanently unfit.

Again, the prognosis in such cases is extremely unsatisfactory and no definite one can properly be given under a year, whereas the military authorities require it much earlier. The surrounding circumstances of modern gunshot wounds have apparently lost much of the seriousness recorded of these injuries in most text-books, and it would appear that the resulting nerve shock and injury to the nervous system are the most frequent sequelæ and at the same time difficult to prevent and treat, but those towards which, in my opinion, our efforts must be directed. The absence of local nerve lesion or injury producing the nerve change is significant, and the number of cases observed would not support the theory of these symptoms occurring in nervous persons only. It would be interesting to ascertain the actual numbers of men who have been invalided out of the service as the result of the South African campaign after bullet wounds and shell injuries whose permanent disability is purely shattered nerves. If possible the engagement in which the patient was wounded should be ascertained. Badly conceived projects by generals and commanding officers causing panic and disaster may then be found to be largely responsible for the development of such nervous cases quite apart from surgical injuries.

Aldershot.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

FRENCH HOSPITAL AND DISPENSARY.

A CASE OF PLASTIC BRONCHITIS WITH ITS POST-MORTEM APPEARANCES.

(Under the care of Dr. A. VINTRAS.)

PLASTIC bronchitis is an exceedingly rare disease, but it has been recognised from very early times and Galen has mentioned that solid masses of fibrin may be expectorated.[1] In 1897[2] Clarke and Lister explained the real method of formation of the casts and showed that they were not due to the congulation of blood. Up to the present time more than 100 cases have been recorded, even if allowance be made for some which were probably not instances of true plastic bronchitis. The case recorded below is almost typical of the disease. Hæmoptysis is a very frequent symptom, for it occurs in about one-third of the cases, and epistaxis has also been observed.[3] The treatment by inhalations of lime-water appears to have been suggested[4] by Kuchenmeister's observation of the solubility of diphtheritic membrane in lime-water,[5] though Dixon[6] had pointed it out long before. For the notes of the case we are indebted to Dr. Henry Dardenne, physician to the French Hospital.

The patient was a man, aged 68 years. He had been for seven years a soldier in the French army and had served all his time in Africa. Since then he had had no regular occupation. He was admitted into the French Hospital on August 18th, 1894, under the care of Dr. Vintras. He complained of cough, shortness of breath, hæmoptysis, and pains across the chest both in front and behind between the shoulder-blades. His illness began three months previously after allowing his clothes, which had been soaked through with the rain, to dry on him. He remained after this for two days in bed. Since that time he had been troubled with fits of coughing which were now and again very severe. A month previously to admission he noticed for the first time that after one of these fits his expectoration was tinged with blood, very thick, and almost gelatinous in consistence. He used to feel better for a day or two and then he would have another attack of coughing. These also became more severe. A week before admission he spat about three ounces of dark coagulated blood. He had for 12 hours a very severe pain across the chest in front, and this, together with a most distressing cough, lasted until he had expectorated some very thick and dark matter. His breathing then became much easier. He had before this always enjoyed good health. His habits had always been regular and he never drank to excess. There was nothing particular in his family history. His father died at the age of 78 years from cerebral hæmorrhage, his mother at 50 years of age from pneumonia. He remembered nothing about his grandparents. An uncle of his suffered from asthma and died from kidney disease. The patient was 5 feet 11 inches in height and was very emaciated. His weight six years before was 12 st. and on his admission it was only 10 st. His features were sharp and his complexion was sallow and pasty. His lips and ears were slightly cyanotic. His conjunctivæ were slightly jaundiced. The alæ nasi moved freely with each inspiration. The veins of the cheeks were dilated. His expression at times was very anxious and careworn. His temperature was normal. On examination his chest was found to be barrel-shaped. Its mobility was deficient. The sterno-mastoids stood in bold relief and could be seen to contract on inspiration. The vocal fremitus and resonance were normal. The chest was tympanitic in front. The right base behind was somewhat dull. On auscultation rhonchi and sonorous and sibilant râles were present over the whole chest both in front and behind. At the right base behind there was a respiratory murmur very indistinct and the vocal fremitus here was slightly impaired. The pulse was regular, full, incompressible, and beating at the rate of 100 per minute. The arteries were tortuous and indurated. The apex beat could be felt and seen in the sixth left intercostal space, half an inch outside the mamillary line. The heart-sounds could not be distinctly heard and neither the superficial nor the deep cardiac dulness could be detected owing to the emphysematous condition of the lungs. The teeth were decayed. The tongue was large and flabby, the papillæ were very prominent, and there were here and there a few superficial fissures. It was coated with a white fur except at the tip and edges. He had at times some difficulty in swallowing his solid food and this had increased within the last fortnight. He complained of no morbid sensations either before or after food. His appetite was good. His bowels were regular. The other systems appeared to be normal. On August 22nd, four days after the patient's admission, Dr. Dardenne was hastily summoned to the patient. He found him suffering from intense dyspnœa and he seemed to be on the verge of suffocation. His face was livid and covered with a cold perspiration. His eyes were bloodshot and looked as if they would come out of their sockets. The muscles of forced inspiration were acting powerfully and both hypochondriacal regions receded during inspiration. His breathing was about 60 per minute. His voice could scarcely be heard and the patient complained of pain and of a sense of pressure in the epigastrium and between the shoulder-blades. He had an incessant and harassing cough, and this would at times be relieved by the expectoration of a thick, sanguinolent fluid. Suddenly his face became quite black and he gasped for breath. His body was shaken with a severe fit of coughing. Tracheotomy appeared to be inevitable. However, with considerable effort he succeeded in expectorating a dark mass of the size of a cherry-stone, and this was followed by about two ounces of dark, semi-clotted blood. He felt instantly relieved and sank back exhausted. On floating the little black mass into water it turned out to be a perfect cast of a middle-sized bronchus with its ramifications. It was yellowish in colour and three and a half inches in length. For the next two or three days he spat some muco-purulent fluid, and felt much easier. The respiratory murmurs were more distinct at the right base behind. The pains had disappeared and he expectorated no casts, only some dark blood and mucus. On the 26th he had another attack of dyspnœa, not so severe as the previous one, but he complained of the same severe pain in the epigastrium and between the shoulder-blades. On this occasion he expectorated about 15 casts. They were this time very soft and friable and much whiter than the first one. Peculiar adventitious sounds were to be

[1] De Locis Affectis, Book i., chapter i.
[2] Philosophical Transactions, vol. xlv.
[3] S. West: Practitioner, August, 1889.
[4] Wilson Fox: Diseases of the Lung and Pleura, 1891, p. 51.
[5] Oestreichische Zeitschrift für Praktische Heilkunde, 1863.
[6] Medical Commentaries, 1788, vol. ix.

heard before he had the last fit. Some authors have called these "bruits du drapeau." For a week after this he complained of no pain but of a feeling of lassitude and expectorated a sanguinolent fluid. On Sept. 2nd the patient had another attack and died suddenly. Artificial respiration and tracheotomy were of no avail.

Necropsy.—On post-mortem examination 15 hours after death rigidity and lividity were well marked. Both lungs were adherent and extremely emphysematous. The thoracic viscera were removed *en masse* together with the tongue, the trachea, and the œsophagus. On slitting the latter open a soft, rapidly growing epithelioma was detected about half an inch above the tracheal bifurcation. It extended for an inch above and below this and was firmly adherent to the trachea which was also compressed by the growth and at this point could hardly admit a small goose quill. A cast was found projecting from the right bronchus into the trachea and blocking the already strictured lumen of the latter. It measured two inches in length and was milk-white in colour. The mucous membrane of the right bronchus was intensely congested. Only one small cast was also detected in one of the tubes of the right middle lobe. Both lungs were crepitant but intensely congested. There was no trace of tubercles anywhere. The heart was enlarged and weighed 15 ounces. The valves were healthy and competent. The right ventricle contained some coagulated blood; the left was empty. The brain and spinal cord were congested and so were the liver and kidneys.

Nature of the casts.—When first expectorated they were either by themselves or rolled in the form of a little ball coated with thick muco-sanguinolent fluid. In colour they were pale yellow. The ends of the casts were bulbous, thus showing that they had extended into the infundibula, and the large cast could be inflated. On its surface there were some bulgings, this most likely caused by the more or less rapid deposit of fibrin. In consistence they were tolerably compact and to some extent elastic. On cross section concentric layers of a lamellar fibrillated structure were seen, and between the layers there were inclosed leucocytes, pus corpuscles, and some cylindrical epithelium—but very few blood corpuscles. Crystals of Charcot were not present. The casts were insoluble in water, but were soluble in lime water to a great extent. The casts, in my opinion, were made up of fibrin and not of mucus or of a coagulation necrosis of the bronchial epithelium, as was once thought. The alveolar vessels were congested. The treatment consisted in the intervals in the patient taking every three or four hours inhalations of lime water and internally a mixture of iodide of potassium and some expectorant. During the fits nitrite of amyl was tried but with no benefit. A mixture of A.C.E. and apomorphine subcutaneously seemed to shorten the attack.

Remarks by Dr. DARDENNE.—Plastic or fibrinous bronchitis is a very rare disease, and there are very few cases reported where its post-mortem appearances have been noted. In the above case I had every possible opportunity to observe its clinical characters, the deceased being at the time an inmate of the French Hospital. I have since met with another case in private practice.

ROYAL NAVAL HOSPITAL, GREAT YARMOUTH.

A CASE OF HYDATID DISEASE OF THE LIVER DISCOVERED BY THE PRESENCE OF DAUGHTER CYSTS IN THE MOTIONS.

(Under the care of Surgeon F. H. A. CLAYTON, R.N.)

THE cases are few in number in which an hydatid of the liver has discharged its contents through the common bile duct and still rarer are the cases in which recovery has followed, for in most of these cases, though some part of the cyst has escaped into the bowel, the remainder has required an operation for its removal or has been found post mortem. The comparative infrequency of hydatids in this country and the peculiar features in this case render it well worth recording.

The patient was a strong and healthy-looking man, aged 38 years, an attendant at the Royal Naval Hospital, Great Yarmouth. The only point of any significance in his previous history was that 12 or 14 years ago he was engaged in looking after some greyhounds. His illness commenced about Dec. 27th, 1899, when he was put upon the sick list, complaining of headache and diarrhœa, but with no chill or rigor. His temperature remained between 102° and 103° F. for four or five days, with a morning fall of about a degree, and showed some tendency to steadily rise. With this he was passing three or four pea-soupy motions daily; his tongue was furred, dry, and typhoid-like, and his liver was somewhat enlarged, but beyond slight pain and tenderness in the right hypochondriac region he complained of little. With liquid diet and the administration of an intestinal antiseptic all symptoms disappeared, although there was for some time a slight nocturnal rise of temperature. He returned to duty on Jan. 16th, 1900, three weeks after admission. On March 4th he suffered from considerable colicky pain about the epigastrium, shooting round to the right loin, but was free from this when seen on the next morning, although he was somewhat jaundiced. Jaundice increased during the day and the liver was found considerably, though uniformly, enlarged. Under treatment symptoms rapidly disappeared, and as he was anxious to return to work he was discharged to light duty on the 13th. On the 16th he relieved the gate-porter on a cold day without wearing a great-coat, although warned to avoid chill, and almost at once began to shiver and could not get warm. He was seen next day and complained of the shivering and of the same pain as before, but less severe, and also of anorexia and general malaise. His temperature was again 102° but fell to normal during the next three days, and the jaundice, which reappeared the day following admission to the sick list, was likewise evanescent. This time he was kept on the sick list for several days after apparent recovery and was first allowed to go home on the 30th. Here he partook of some cake and a glass of beer, and afterwards during the entire night suffered far more severely than before from a return of the same colicky pain, and on coming in next morning he was described as being bent like an old man. When seen this had again passed off, but, as before, his temperature was raised and a return of the jaundice soon made itself evident.

On searching the motion passed on this day for gall-stones about a dozen cyst-like bodies were found which varied in size from a pea to a large bean. Some of them (apparently the larger ones) were ruptured, and all contained turbid fluid, and were white and membranous looking. A microscopical examination of the contents of one revealed numerous scolices with their rings of hooklets and several stray hooklets. These bodies were found on various occasions afterwards, usually smaller and unruptured, except after a similar attack on April 19th. With them much slimy gelatinous matter and fragments of white membranous material, apparently portions of cyst wall, had also been passed, and at times some had been bile-stained. Latterly few cysts had been seen and only the fragments of the wall. These were always of much the same size—that of a small pea. The liver enlargement had at this time (March 31st) increased but was still uniform; there was slight epigastric tenderness but nowhere any suggestion of a thrill or localised enlargement. His appetite remained poor and he displayed great susceptibility to draughts though he complained of no definite chilliness. He also had slight occasional epigastric pain and tenderness but otherwise remained well until April 19th, two days after being allowed out in the grounds, when he had another severe attack of pain all the afternoon. On this occasion he was seen to be pallid, collapsed, and covered with clammy sweat. An injection of morphia (one-sixth of a grain) almost at once relieved him. This attack was previously followed by transient jaundice. He passed a motion which was clay-coloured containing several more ruptured large cysts. His urine on one or two occasions after the attacks had been very thick with urates and contained much bile, otherwise it presented no abnormality, and there was no sign of respiratory, circulatory, or nervous involvement. After this attack the patient steadily improved and was discharged to duty on May 2nd. Although his liver is still much enlarged and he continues to pass fragments he is gaining flesh and remains well, and up to the present time (August) he has had no return of symptoms.

Remarks by Surgeon CLAYTON.—As to the nature of the case there can be little doubt that there was a degenerating cyst in the liver discharging into the alimentary canal. The constant sequence of events—pain resembling biliary colic, followed by jaundice, which was always transient—the effect of morphia—the uniform size of the fragments passed, and the rupture of the larger cysts, strongly suggest: (1) that the cyst was discharging through the biliary passages; (2) that at times portions became impacted, producing the colic; and (3) that by

spasm and irritation or by rupture and discharge of the irritating contents of a cyst into these ducts the jaundice was caused. It may be noted that on two occasions following the pain larger and ruptured cysts have been seen, and the temperature may also perhaps be explained by this rupture of the cysts. The short duration of the jaundice negatives the idea of pressure. The interesting points about the case were as follows: 1. The absence of suppuration, for although the cyst was in direct communication with the bowel no suppuration had apparently taken place in it—a fact, perhaps, due to the direction of the bile-flow and its antiseptic nature. Evidence of this absence of suppuration was afforded by the improvement in his general condition, a gain of 11 lb. in weight since May, by the absence of fever chills or sweating, and so on. Blood examinations carried out at various times with the Thoma Zeiss hæmocytometer show no leucocytosis. The rupture into the bile passages therefore must probably have been a result of pressure atrophy. Other points of interest are to be found (2) in the resemblance of the attacks to those produced by gall-stones and (3) in the possibility that without the examination of the motions this case would have joined the ranks of those undetected unless on the post-mortem table.

CHILDREN'S HOSPITAL, BIRMINGHAM.

TWO CASES OF CRANIAL MENINGOCELE TREATED BY EXCISION; RECOVERY.

(Under the care of Mr. LEONARD GAMGEE.)

THE successful surgical treatment of cranial meningocele depends chiefly on the absolute asepsis of the operation, but partly also on the strength of the child, for in this operation the two chief causes of death are septic meningitis and collapse. The use of Morton's fluid is much less frequent at the present time than it was when it was advocated for spina bifida by the committee of the Clinical Society of London.[1] At that time it was probably by far the safest method of treatment, but the surgery of the skull and the central nervous system has advanced greatly since then, and now in suitable cases excision gives much better results.

CASE 1.—A girl, aged six weeks, was admitted into the Children's Hospital, Birmingham, on March 31st, 1898. Growing from the back of the head was a tumour of the size of a large Tangerine orange. The overlying skin was normal in appearance and the tumour could be felt to possess a narrow pedicle, which passed through an opening in the mid-line of the occiput half-way between the posterior fontanelle and the foramen magnum. The swelling was translucent, was partly reducible, and became more tense when the child cried. The child was in other respects healthy and, according to the mother's account, the tumour was increasing in size. Operation was performed on April 1st. A longitudinal incision was made over the tumour and the skin was easily peeled off, the membranous sac, which was found to have a very narrow pedicle, being left intact. The sac wall having been incised it was found to contain clear fluid only and that a canal passed through the pedicle and communicated with the interior of the skull. The pedicle was ligatured with silk and the skin wound sutured. The wound healed by first intention and the patient was discharged from hospital in ten days' time. The child was seen four months after the operation and the condition then seemed to be perfectly satisfactory.

CASE 2.—A boy, aged 11 weeks, was admitted into the Children's Hospital on May 10th, 1900. Growing from the back of the head was a tumour having the same general physical characteristics as the one in the last case. The tumour was attached by a pedicle passing through an opening in the bone situated midway between the posterior fontanelle and the foramen magnum. The swelling was oval in shape and the greatest circumference was 10½ inches. On May 11th the following operation was performed. A skin incision was carried round the tumour a short distance from the pedicle and the sac was incised and found to contain nothing but clear fluid. Through the pedicle ran a canal communicating with the interior of the skull. The sac and the skin overlying it were next cut away. As the pedicle was too broad to be contained in one ligature the opening in the membranes was closed by a continuous silk suture and the skin edges brought together. The wound healed by primary union and the patient was discharged perfectly well at the end of a fortnight.

Remarks by Mr. GAMGEE.—The treatment of cranial meningocele by excision of the sac seems to hold out greater hope of success then does that by injection of iodine solution. When the tumour has a narrow pedicle the operation is simplicity itself and it is only when the pedicle is thick that any difficulty is experienced. Even then the difficulty is not great and can be overcome by leaving sufficient of the sac wall to make flaps, which can be sutured together. Unfortunately, it is in comparatively few cases of cranial meningocele that the patient is in a condition to withstand the shock of operation.

[1] Transactions of the Clinical Society of London, vol. xviii., p. 383.

Reviews and Notices of Books.

Préparation et Coloration du Système Nerveux. (*Preparation and Staining of the Nervous System.*) Par BERNARD POLLACK. Traduit de l'Allemand par M. JEAN NICOLAIDI. Paris: Georges Carré and C. Naud. 1900. 8vo, pp. 212. Price 5*s*.

PROFESSOR LAUNOIS provides a preface to the French translation of Dr. Pollack's well-known work, in which attention is drawn to the great advances made in the technical examination of the nervous system during the past 25 years.

In the opening chapter, on Taking Out the Brain and Spinal Cord, Dr. Pollack makes some practical observations which are of special value when these organs are to be submitted to subsequent histological examination. The methods usually employed in dissecting the brain so as to display to the best advantage its various parts are then described. The method of Pitres of transverse vertical sections is rarely used in this country, and yet it is undoubtedly very useful where the brain is to be microscopically examined. The Preservation of the Brain next occupies the author's attention, and here formol necessarily figures largely in the various preserving fluids. The methods of making dry brain preparations, which are very generally neglected in this country, are given at considerable length in Dr. Pollack's book. Laskowski's method with formol is recommended on account of its simplicity. The reviewer has had a considerable experience with Laskowski's method, chiefly using the earlier formula in which there was no formol. This latter procedure can be confidently recommended as producing a durable preparation which shows very little shrinkage and maintains a fairly good colour. The use of formol appears at times to spoil the colour and to increase the shrinking. Dr. Pollack next describes hardening fluids, the different methods of embedding, section-cutting, &c. The important subject of staining is considered under the examination of (1) the nerve-cells; (2) the myelin sheath; (3) the axis cylinder; and (4) the neuroglia. Special sections are given to Golgi's method and to Ehrlich's methylene blue method. The numerous methods are very clearly described seriatim, special attention being given to the more important ones.

The author very wisely follows the plan introduced by von Kahlden of setting out the various points in the methods with the approximate time required for each manipulation. In the section on Golgi's method all the various modifications are fully given. Nothing, however, is said about the criticisms, not always favourable, which have been passed on this method. A full account of the examination of the retina will be found in an appendix. Under the Staining of the Axis Cylinders the author points out—and most will agree with him—that the methods at present employed here are hardly as efficient as they are for the examination of the other elements. A special section is given to the peripheral nerves. A most useful chapter will be found at the end of

the book in which the author summarises his recommendations and names the methods which are employed in his own laboratories according to the object to be attained.

The practical histology of the nervous system is incomparably more difficult and, at the same time, more interesting than that of any other organ in the body. Hence it is that several guides to this subject have been published by those specially interested in it. It may be confidently stated than none are more efficient than the one which we owe to Dr. Pollack. It is almost indispensable in every laboratory where neuropathological studies receive any attention. The laborious work of translation by M. Nicolaïdi has been admirably done.

Canine and Feline Surgery. By FREDERICK J. G. HOBDAY F.R.C.V.S., Professor-in-Charge of the Free Out-patients Clinique at the Royal Veterinary College, London. Edinburgh and London: W. and A. K. Johnston. 1900. 8vo, pp. x. and 152. Price 5*s*.

THE greater part of the material comprised in this volume has already appeared as a series of articles in the *Journal of Comparative Pathology and Therapeutics*, and it is fully worthy of being published in this more permanent form. The surgery of the lower animals has kept pace to a great extent with human surgery, and a cursory examination of this work will show that antiseptic principles are fully appreciated by veterinary surgeons. The directions for the preparation of the instruments and the operator's hands are all that could be desired. In animals as in man there are dangers to be avoided in the use of anæsthetics, and we learn that three deaths occurred in 300 anæsthetisations in dogs. It is especially risky to anæsthetise a pug on account of the shape of its nose. Very many operations are described, and they range from the opening of abscesses to the operation for strabismus and excision of the spleen. They are adequately treated, and we find many of the surgical appliances introduced within recent years, such as Makins's clamp and Murphy's button, figured and described. The work also contains a few operations which are not usually required in the case of human beings, such as an operation to cause the ears to droop and amputation of the tail. There are 76 illustrations. The perusal of this volume must prove of much interest to those who are only acquainted with the surgery of the human body.

An Atlas of Urinary Deposits and the Clinical Examination of the Urine. By LINDLEY SCOTT, M.A., M.D. London: J. and A. Churchill. 41 plates and illustrations in the text. 1900. Pp. 49 + xli. and Index. Price 15*s*.

THIS should be found a most useful book both for the student, the resident medical officer, and the hard-worked practitioner. Examination of the urine has now become, it is to be hoped, a routine practice in every case whether simple or the reverse, and the student should be bred up to such examinations from his first day in the wards. Dr. Scott commences by giving a very clear account of the composition and physical properties of the urine. Next comes an account of its normal constituents and how to recognise them, which is followed by a description of abnormal constituents, of the bacteriology of the urine, and a note upon the examination of the urine in cases of life assurance. The first portion of the work ends with a tabulated description of the characteristics of the urine in various diseases. The plates, many of which are coloured, are accompanied by a clear description and a small key plan. They have all been drawn from actual specimens, with the exception of Plate XXX. which shows the forms of rare animal parasites. The frontispiece shows the variations in colour due to both normal and abnormal pigments.

JOURNALS.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., with the coöperation of ADAM SEDGWICK, F.R.S., W. F. R. WELDON, F.R.S., and SYDNEY J. HICKSON, F.R.S. Vol. XLIII., Part 3. London: J. & A. Churchill. July, 1900. Price 10*s*.—Almost the whole of this number of the *Quarterly Journal of Microscopical Science* is occupied with an elaborate essay by Mr. F. W. Gamble, M.Sc., and Mr. J. H. Ashworth, D.Sc., demonstrators and assistant lecturers in zoology, Owens College, Manchester, on the Anatomy and Classification of the Arenicolidæ. The authors show that there are three British species—A. marina, A. ecaudata, and A. Grübii. They give a detailed account of the structure of these species as well as of A. Claparedii and of A. cristata. Besides the external features usually relied upon by chætopodists they place great reliance on the characters of the otocysts, prostomium, and nephridia taken together. They give a good bibliography of the species and illustrate their memoir by numerous figures contained in eight plates. The second article is by Major Ronald Ross, I.M.S., lecturer on Tropical Medicine, University College, Liverpool, and Dr. R. Fielding-Ould, acting demonstrator at the Liverpool School of Tropical Medicine, and is entitled Diagrams Illustrating the Life History of the Parasites of Malaria. The diagrams are contained in two plates. Professor Ray Lankester contributes a short article on the Morphological Significance of the Various Phases of Hæmamœbidæ.

The Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, F.R.S., D. J. CUNNINGHAM, F.R.S., G. S. HUNTINGTON, M.D., A. MACALISTER, F.R.S., and J. G. M'KENDRICK, F.R.S. July, 1900. Vol. XXXIV., Part 4. With six Plates and Figures in the Text. London: Charles Griffin and Co.—In this number Dr. Christopher Addison, of University College, Sheffield, continues his report on the Topographical Anatomy of the Abdominal Viscera in Man, especially the Gastro-Intestinal Canal. The article gives the results of numerous necropsies and deserves to be carefully studied by those who are frequently engaged in performing abdominal sections. Dr. Alexander Low, senior assistant in the Anatomical Department, Aberdeen University, gives a description of a specimen in which there is a rudimentary first rib along with 13 pairs of ribs and 25 presacral vertebræ. The subject was a male. Mr. Arthur V. Meigs contributes a paper read at a meeting of the Pathological Society of Philadelphia, upon Endophlebitis. Drawings are given of the appearances presented under the microscope. Mr. Walter H. Gaskell, F.R.S., in an article on the Origin of Vertebrates, deduced from the study of Ammocœtes, discusses the origin of the pro-otic segmentation and the meaning of the trigeminal and eye muscle nerves, and also describes the palæostoma or old mouth as well as the olfactory organ and the meaning of the first nerve. He further gives the evidence of prosomatic appendages in Ammocœtes as furnished by the course and distribution of the trigeminal nerve and finally considers the palæontological evidence which he believes demonstrates the Ammocœtes to be a Cephalopod. Two plates accompany this article. The part closes with the Proceedings of the Anatomical Society of Great Britain and Ireland.

Journal of Balneology and Climatology.—The July number of this journal contains, among other things, some good papers with reports of discussions thereon, such as those by Dr. A. S. Myrtle of Harrogate on Personal Experiences of Gout; by Dr. H. Laing Gordon on the Climate of Rhodesia; and by Sir Joseph Fayrer on the Hill Stations of India as Health Resorts. Speaking of the climate

and diseases of Rhodesia Dr. Gordon has something to say on the subject of the mosquito and the production of malarial fever. He has been unable to obtain definite information as to the presence of the anopheles in that country, but Dr. Patrick Manson has received specimens from British Central Africa and has little doubt that it will also be found in Rhodesia. Dr. Gordon considers that in all probability this particular mosquito does exist in the lower levels of Rhodesia, especially near to the Portuguese territories, but it is not, he thinks, at all certain that it flourishes in the elevated districts where malarial fever is undoubtedly also endemic to a certain extent. He quotes some evidence from Enkeldoorn in Mashonaland connecting the malarial fever with soil changes and decaying vegetable matter and with the overturning of virgin soil in farming. He also gives facts regarding the great prevalence of malarial fever among the police in Bulawayo, a prevalence apparently attributable to their improper housing and exposure during the wet season, as shown by the great improvement which ensued on these conditions being removed. The principal medical officer of Rhodesia asserts that the fever is rapidly becoming less frequent, if not unknown, in the towns and centres and that it has also altered to a much milder type. In the discussion which followed the reading of this paper several speakers took part. Dr. A. P. Hillier, who had been 13 years in practice in South Africa and had since been in close correspondence with several of the colonists in Rhodesia, described his experience. Although he cordially recognised that there was no more brilliant piece of original research work than that connected with the investigation of the malarial parasite and its history, he confessed that the occurrence of malaria in South Africa, and especially in Rhodesia, had caused him considerable speculation. Rhodesia, he explained, was a very thinly-populated country and had an area of something like 150,000 square miles, and some of the low-lying malarious districts were uninhabited. If the mosquito be entirely dependent upon man for its stock of the malarial parasite, how and where was it obtained? Certain it was, nevertheless, that casual visitants, such as sportsmen and explorers, to these low-lying districts contracted the malarial fever there from which they very soon afterwards suffered. These and other points, such as why the anopheles should be the only variety of mosquito which acts as the medium for its spread, require to be, as they probably will be, cleared up by future researches into the genesis and life history of the mosquito.

New Inventions.

CHINOSOL ANTISEPTIC EQUIPMENT.

THE Chinosol Hygienic Company, of 36, St. Mary-at-Hill, London, E.C., are introducing a series of neat cardboard cases containing an assortment of Chinosol preparations adapted for various antiseptic, deodorant, and disinfectant purposes. The box sent to us contains one bottle of pure Chinosol powder, one bottle of five-grain tablets, one bottle of eight-grain tablets, one bottle of bath and toilet tablets, and two tins of sanitary tablets each containing 45 grains of crude Chinosol. The series includes five boxes, No. 1 to No. 3 being for medical and surgical purposes, No. 4 for hygienic and toilet purposes, and No. 5 for the extemporaneous preparation of a concentrated disinfecting fluid. The powerful disinfectant properties of Chinosol have been established, and this salt possesses many advantages over other preparations, as it is freely soluble, practically odourless, and unirritating.

THE COST OF MEDICAL EDUCATION.

IT was for several years our habit to place before our readers an estimate of the cost of medical education. We did this that those interested in arriving at the whole amount of this expense—which is by no means limited to such obviously necessary payments as fees, board, and lodging—might have some trustworthy materials before them on which to found a decision about joining a medical school. We obtained our original information from personal communications as answers to a schedule of questions placed by the aid of the deans and registrars of the various medical schools in the hands of a certain number of selected students, who were requested to furnish in the form of replies the data from which a general statement could be prepared for the guidance of others. Although the habits of the individual students necessarily had a great, even a preponderating, effect upon the replies the returns were sufficiently numerous to yield averages, and it was easy to see that the average man spent more money in the metropolitan centres than in the provinces, and that the standard of living and the cost of maintaining a given standard varied from place to place. The most complete statement that we received came from a provincial student, whose great economy in the matter of personal expenses could only be looked upon as an example to distinctly follow. It would have been unfair to expect that every student could live so frugally as to support himself and pay for rent and food (ten months), clothes, washing, recreation, fees, and even "incidental" and "unaccounted" expenses on the small annual sum of £65. But these headings will serve as a plan upon which we can discuss the subject generally—premising that only general information can be given that is worth anything, as a medical student as much as any other young man can make his expenses as large as he wishes, while he can only reduce them to the point that is permitted by the circumstances under which he is studying.

The cost of *rent* is the first item to be considered, and naturally enough is a charge which varies greatly with the locality. A student who occupies rooms in desirable quarters of London will pay from £2 to £3 a week on this account alone, whilst in many large provincial centres lodgings are almost as expensive as they are in London. But such rents are generally shared between fellow students, who make one sitting-room go with two or three bedrooms. We may take it that a student's rent for furnished apartments ought not to amount to more than one-quarter of the sum that he can fairly count upon receiving as income. If his parents can allow him £150 per annum (a large sum and one that is beyond the power of the parents of many medical students to set aside for one child) his rent should not be more than £1 a week. We are calculating that he will reside at his particular centre of education for about ten months during the year. In London it is not always easy to live near the hospital and obtain lodgings for much less than £1 a week, so that if a student can only expect £2 a week from his parents he is absolutely compelled to spend an imprudent proportion of his income in rent. Clearly none of this applies either to the students who live with their parents or those who are studying at a university for an arts degree concurrently. Nothing more definite on this subject can be said than that a careful man can live as a medical student on £80 per annum if he does not spend more than 10*s.* a week on his lodgings; but he will not always find it easy to obtain the lodgings, and every shilling above this weekly sum will make it very hard indeed for him to make both ends meet.

Referring to other centres, the rent of lodgings in Edinburgh is considerably less than in London, but in Dublin it is about the same as in the English metropolis. The cheaper quarters of Dublin are more than unpleasant to live in; they are positively dangerous in many places from their lack of proper sanitation. In Edinburgh there is a sort of residential club known as University Hall which affords facilities of social intercourse and mutual aid, as, for example, in the lending of books, which is practised systematically among the resident students. In addition to these amenities, the institution secures them lodgings at a very moderate monthly rent. Glasgow lodgings again run at about the same level, whilst in Birmingham rent is

cheaper still. The cheapest district of which we have any full information is Aberdeen, where both in the matter of rent and of food we have heard of an economy that is altogether exceptional, 3*s.* 6*d.* a week in summer and 4*s.* 6*d.* in winter, the additional shilling representing the cost of fuel to cope with the Scottish winter. And a shilling will not go far this year when spent in coal. In towns like Cork and Leeds the average rises above this limit, but 15*s.* a week is a somewhat high charge. In the Irish provincial towns the rent of rooms is very low, 5*s.* and 6*s.* being by no means below the average. A somewhat higher rent is asked, but still ranging about 10*s.* a week, in English provincial towns which are in possible touch with a medical school—such as Stockton, or Rugby, or Devonport; but residence in these involves constant railway travelling, and would hardly be adapted for the purposes of a student's career, unless some special considerations influenced the decision with which fine questions of comparative expense would not come into competition. The lodging accommodation afforded by residential colleges, hospitals, and the like institutions should be mentioned. But concerning these a word may suffice. The advantages of residence in a college are manifold, but they are chiefly of the intellectual and social kind. The cost is not less than that of private lodgings thriftily selected. There may also be in some instances impatience on the part of the student of the control imposed by the regulations, which are necessarily devised for the orderly conduct of such institutions. Nevertheless, the select society, and even the inevitable restraint, of such institutions are of great service, especially to young students, who have reason to dread nothing more than solitude and an irresponsible control of any considerable proportion of their own time. On the other hand, the cost of board and lodging in such institutions is not greater than the average cost of the same accommodation in private lodgings in their neighbourhood. A plan that involves no inordinate expense is to place a student in the house of a medical practitioner in the neighbourhood of the school which he is attending. It will be found that when the educational facilities thus placed in his way are taken into account, in addition to the mere commercial value of his board and lodging, the arrangement is usually a very economical one. The opportunities for doing this are, of course, not unlimited, but they are sufficiently numerous to merit mention here. A word of warning must be added. Every man who is willing to receive a student into his house and who offers advantages in the way of private tuition may not be capable of carrying out his promises. The modern curriculum is a severe one, and the preliminary scientific work is more arduous than it was even a decade back. We recommend that the advice of the dean of the school be asked before any bargain is entered upon to place a student with a gentleman who offers board, residence, and tuition to his charges.

Passing to the next heading, that of *food*, we may observe that here again nothing can be said precisely, but we can indicate the minimum sum that can be spent, and variation from this sum must be dictated by the student's purse. The prevalence of high prices or of low prices, as the case may be, affects such figures very little, and we may say that £30 is, we consider, in London the least sum that will meet necessary expenditure on good food. There will be no real economy for student or parent in the attempt to save in this item. We again refer only to ten months in the year. Food at the present moment, like everything in this country, is tending to become more expensive because of the rise in the price of coal.

Lastly, with regard to *fees*, the composition fee which is published by the various schools, and is in a sense a comprehensive charge, may easily be supposed to be more comprehensive than it is. A glance at our tables will show exactly how it is arrived at and what it covers. Broadly, it may be said to include all the professorial fees; but it does not include *books*—that is a matter of course. Equally it does not include *instruments*, and these two items together cannot be fairly written down at less than £3 a year in an ordinary case. We published in our issue of Sept. 1st, p. 646, a brief list of selected books with their prices which, or their substitutes, the student will require to read. He will, of course, follow the advice of the teachers of his school as to the value of any particular manual, while a much larger selection will be found in our Students' Number of Sept. 3rd, 1898, p. 657, *et seq.* Many circumstances may occur to falsify the estimate of an annual expenditure of £3 in books A successful student may largely supply himself with books by prize-winning, or access to a suitable library may minimise his personal requirements in this respect. With instruments, bones, parts for dissection, and the like, the case is somewhat different, and the expenditure under these heads can only be avoided at the expense of the student's education. A niggard hand in such matters makes therefore a grievous mistake, and this should be clearly appreciated at first, otherwise the temptation to undue parsimony will be supported by a grudging mind. Another item which is for very good reason omitted from the composition payment is the *charge for examination fees*. The reason of this will be at once apparent if it is only considered that the teaching bodies and the examining bodies are distinct, and that whereas the composition fee represents a sum payable to institutions of the former class the examination fees are receivable by institutions exercising the examining function. It will be hard to quarrel with an arrangement which is justified by the importance of paying the fee to the right person. Less obvious, but of the same kind, is the explanation of the circumstance that *tutorial* fees are not included in the composition. Many students pass through their curriculum by the aid of lectures and professorial instruction only. This is very possible when only pass examinations are attempted; but for competitive examinations additional instruction is sometimes an indispensable preparatory. Such additional instruction must of course be paid for, but its occasional character prohibits its inclusion with the indispensable items in the comprehensive payment.

To sum up, we have this position: The minimum sum that a student must be prepared to spend in London during a year on board and lodging is £60, though £50 will cover his expenditure in these directions in other centres, and less if he is careful. He can save 20 per cent. of this expenditure by living with a fellow-student to their mutual benefit. He must be prepared to spend £10 more at least in books, or instruments, or both. He will be almost the exception if he does not incur one or two extra liabilities in the way of special tuition during his five years' career. He will require another £10 a year as pocket money, and to these figures must be added his fees and the price of his clothes. We do not think that in London any young man should be asked to attempt to maintain himself entirely and pay all necessary fees and expenses of education as well upon a less sum than £100 a year. That many receive less, and, to their infinite credit, make it suffice and crown the self-denial of their youth with a success that is sweetened by the struggle to obtain it is undeniable; but many more of their fellow-students receive larger allowances and find them inadequate. Upon individual instances, with their innumerable reasons for special treatment, we do not attempt to dwell, and we desire our readers to remember that, roughly speaking, the figures which we now give for London are a little, perhaps 15 per cent., in excess of those that with the practice of economy would be found to apply to the provinces, Scotland, and Ireland.

If a student cannot command personally or by allowance from his parents £100 per annum, and look to receiving it regularly for at least four out of the five years of his curriculum, we consider that he is rash in these exacting days to embark upon our profession. These are almost identical with words that we have previously used in treating this topic, but no alteration in prices or conditions makes them less true.

HEALTH OF BRISTOL.—At the meeting of the Bristol Health Committee held on Sept. 4th the medical officer of health (Dr. D. S. Davies) reported that during the past five weeks 202 cases of scarlet fever had been notified (against 41 for the corresponding five weeks in 1899), 51 cases of diphtheria (compared with 15 in 1899), and 32 cases of enteric fever had been notified (against 24 for the preceding year).

TYPHOID FEVER AND COCKLES.—At the meeting of the Exmouth Urban District Council held on Sept. 5th the medical officer of health reported that after a careful examination of the recent cases of enteric fever which were attributed to the consumption of cockles he was of opinion that in four cases the evidence was conclusive. He added that every legal measure had been adopted by the Exmouth sanitary authority to prevent the sale of such cockles, but there was some difficulty in taking legal measures, as the Public Health Act scarcely provided for such a situation.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 15, 1900.

RECENT events in Glasgow with regard to plague are instructive in several ways. The first fact that we are met with in the history of the outbreak is that the original cases of imported plague are not to be traced. The earliest known cases occurred among Glasgow people whose relation, if any, with persons or articles newly come from foreign countries cannot be determined. In other words, the enemy somehow or other eluded the outposts, which in this instance are provided by the system of medical examination of persons arriving at our shores from infected or suspected ports. The next fact is that once the occurrence of plague was established the whole forces of resistance at the disposal of the municipality of a great city, organised by one of the best public health departments which we possess, were at once brought into action. The procedure employed—viz., prompt hospital isolation, medical house-to-house visitation, formation of "cleansing areas," search (with the aid of bacteriology) for cases bearing suspicious similarity to plague, observations of "contacts," along with other administrative measures—was detailed in our last issue. The success that has met this procedure is not open to doubt. Two or three new cases, as was almost to be expected considering that the means of introduction of the plague is unknown, have occurred this week, but there is every reason to consider that the outbreak, if not at an end, has been brought fully under control.

How much can be done by sustained application of well-considered preventive measures when plague appears in a populous British community may also be judged from the account which we print elsewhere of the action taken in Sydney. In this city of nearly half a million inhabitants, including a small Chinese quarter, cases of plague have occurred week after week for nearly six months. Yet, owing to the determined efforts of Dr. ASHBURTON THOMPSON and his staff, the total number of plague cases which occurred during these six months has been scarcely more than 300, and by now the disease appears, for the time at any rate, to have been completely eradicated from the great Australian city. The circumstances of the outbreaks in Glasgow and Sydney give point to certain considerations as regards plague upon which we have more than once insisted. Good as we believe the arrangements made by the port sanitary authorities round our coasts to be, and watchful as we know the port medical officers and the medical department of the Local Government Board to be for cases of imported plague, it is almost certain, from the nature of the disease, that cases will from time to time escape their vigilance. There never were outposts that could not be penetrated. It is essential, therefore, that all sanitary authorities should be prepared for the possible appearance of cases of plague in their districts, whether brought from over-sea or by persons or articles coming from infected places within our island. A little forethought in this direction is the one way to prevent the alarm and panic which the word "plague," with all its seventeenth-century associations of marked doors, death-carts, and plague pits is liable to produce on the public. So far as we know it in colonial and European populations, plague is a disease particularly amenable to preventive measures to the exercise of which we have long been accustomed. Plague does not, like cholera or typhoid fever, become suddenly and widely epidemic through pollution of water-supplies; its ability to infect a population by passing from person to person is limited to a far greater degree than obtains, for example, in the case of scarlet fever; while the infection of plague is clearly not capable of being carried considerable distances aërially, as is that of small-pox and possibly also that of measles. The disease which furnishes to the physician the nearest analogy to plague as regards its method of spread is typhus fever, and the conditions which permit typhus infection—overcrowding, dirt, lack of air, and the like—also seem almost essential to the spread of plague. Rats and fleas, so much considered of late in this connexion, no doubt may in some cases play an important part in propagating the disease. But in this country the opportunities of the rat infecting man after all are not many, while the flea, to produce infection, must needs have come from a person or an animal whose blood contained the plague bacillus—a chance which, save in a severe plague epidemic, may for the common purposes of life fairly be disregarded.

Public health authorities, and therefore the public under their charge, have no excuse for panic, and it is welcome news that signs of panic are difficult to discover anywhere. But every preventive precaution should be taken. We are glad to note that public health authorities all over the kingdom are setting in motion the ordinary means for combating infectious disease, and that the public recognise that measures should be taken before, and not after, a local scare of plague has set in. Some isolation provision should be in readiness whenever such provision is available, efficient disinfection should be practicable, and suspicious cases should be sought out. Few of our towns have the resources of Glasgow, but save for the extensive isolation of "contacts" (which is perhaps the least essential of all the measures there adopted) every place should, if it has any claims to sanitary efficiency, easily be able to take the steps which are needed. Above all, it should be remembered that the best means for prevention of plague, along with a host of other diseases, is steady perseverance in that everyday sanitary work of a community which endeavours to ensure cleanliness, light, and pure air to its members. One other important lesson that may be learnt from the Glasgow experience is the extreme value of the coöperation of the medical practitioner with the health authorities. To the acumen of Dr. THOMAS COLVIN in recognising the suspicious character of the earliest cases Glasgow probably owes much. At this time it would be well in practice to be prepared to entertain the idea of plague, notwithstanding the absence of the disease from the locality where any patient presents suspicious symptoms, and the

lack of any history of his exposure to possible plague infection. If a spirit of precaution as to infectious disease should be the result of the outbreak of plague in Glasgow, that outbreak must be regarded—of course from the strictly medical point of view—as no bad thing for the nation. It is giving sanitary authorities everywhere an excuse for furbishing their weapons against epidemics and strengthening their resources; while it is bringing home to the populations under their charge the fact that terrible disasters can be averted by prompt measures, and particularly by being in readiness against the foe.

THE movement in favour of hospital reform, which has at various times received much attention in our columns, has for its principal objects the improvement of the general administration of hospitals and the devising of means to prevent misapplication of their benefits. Financial questions may for the most part be safely left to the managing committees of these institutions, who have every incentive to practise economy; for in these days of manifold calls on the purses of the benevolent the stream of charity tends to become broken up into many channels and individual subscription lists feel the effects accordingly. Direct financial questions, however, do not often arise, the funds of most of these charities being excellently administered. The great trouble, as all our readers know, is what is termed hospital abuse. During the last 50 years hospitals have everywhere undergone numerous changes for the better. The dietary is liberal, the cooking is superior to that in many middle-class homes, the personal comfort of the patients is studied, the nursing arrangements are as efficient as those provided for the favoured ranks of society, and the medical men in attendance are, as a rule, the leaders of the profession in their locality in town and province alike. Moreover, class distinctions are now less obtrusive than formerly and the spread of education has imparted a certain amount of refinement to the behaviour of the poorest, so that contact with them no longer corrupts good manners. The natural result of all these causes is that a section of the public, which in other matters would resent being told that they were depending on charity, do not hesitate to betake themselves to the hospitals in time of illness, regardless of the fact that they are thereby competing with and displacing those who are socially much beneath them. The benefits of these institutions are in this way apt to be lamentably misapplied, and the weak spot of our hospital system is that such misapplication is possible. But the difficulty is inseparable from the existence of voluntary hospitals supported by charitable contributions. Charitable contributions are for the benefit of the poor, and if applicants who do not belong to this class are to be excluded inquiries into the circumstances of some patients must be made. If these inquiries are thoroughly prosecuted a great deal of abuse can be prevented; but the investigation into the social status of applicants for hospital relief is apt to be perfunctory, while it is very easily defeated by a little ingenuity on the part of the would-be patients.

Various methods have been suggested for the purpose of reconciling these conflicting interests, or at least of reducing the points of divergence. One of them, which has been put forward again and again with many specious arguments, would abandon the principle of support by voluntary subscriptions and would substitute State aid or maintenance by grants from the rates. Then everyone would have a right to demand from the hospital the assistance for which he had paid in proportion to his means and position. To this proposal there are many and obvious objections, but nevertheless some of the inhabitants of Aberdeen are anxious that the constitution of the Royal Infirmary in that city should be thus modified. Our Aberdeen correspondent writes that at a meeting of the "Citizens' One-Plank" Committee, held early in the month, a report on the proposed municipalisation of the Royal Infirmary was submitted by a sub committee, in which it was contended that the system of voluntary support was wrong in principle since it allowed a large section of the citizens to evade their responsibilities towards the sick members of the community, while it also left the institution hampered for want of funds. A resolution was thereupon adopted to the effect that "this committee is of opinion that the only way of making adequate provision for the sick is by having the management of the infirmary placed in the hands of some popularly elected board with statutory rating powers at its disposal, and resolves to take whatever steps may be necessary to have that object realised." The "Citizens' One Plank" Committee is in ignorance, surely, of the meaning of its resolution. Our great hospitals are for the most part institutions of long standing, which have become what they are by a process of slow growth and development. They have not only their history but their traditions, they are capable of inspiring *esprit de corps* among those who are connected with them, and they are regarded not without pride by the people to whose needs they minister. They would not retain the same hold on local sympathies or on the popular mind if they became rate-supported institutions. No longer would they attract the money of the rich or the best efforts of the medical profession. They would fall under the benumbing influence of officialism.

Voluntary hospitals existed centuries before the care of the sick and disabled poor became a subject of national concern to be provided for from the public funds. Some of them have been largely endowed by private benevolence long ago, and the financial difficulties of others have seldom failed to bring forward friends who make increased efforts in their behalf and take proportionate interest in their usefulness. Without the aid of energetic individuals working in association and prompted by generous zeal for the relief of distress our hospitals could never have attained their present position. For undertakings of this kind have many sides, they must not be judged by merely commercial standards, and some of the essential attributes of a hospital, some of the features in the treatmen and after-care of the sick, would have but scanty recognition in the routine methods of a public department. For a hospital to be in all respects a success a certain kind of prestige is necessary. The community should feel proud of the treatment which the hospital affords, and the medical staff should be animated with an intent to keep the fame of the institution untarnished. No such sentiments would be present in the case of rate-supported hospitals which would be regarded with the critical eye that is always turned upon municipal

enterprise; which would be extravagantly managed—for are not public enterprises invariably more expensive than private?—and which would be unenthusiastically served. Again, under our present system those of the subscribers who gravitate towards the governing body are for the most part the right people, but who can suppose that this desirable feature of merit would count for anything in the turmoil and competition of municipal elections? The man who could pull the most strings might find himself chairman of the board of management of a hospital while completely devoid of general sympathy for science, of special sympathy for the sick poor, or of elementary knowledge of hospital management. We deplore deeply the fact that many of our voluntary hospitals are in grave financial difficulty, but we cannot think that the views of the "Citizens' One Plank" Committee of Aberdeen are right.

IN the very happily-worded address delivered by Mr. EDMUND OWEN before the Canadian Medical Association on Sept. 13th, of which an abstract appears at p. 789, occurs the following sentence: "It is a good thing for a surgeon now and then to get away from pathologists and morbid histologists. In recent years there has been, perhaps, rather too much inclination to apotheosise the morbid anatomist, who, standing high in his suit of sable, looks upon the clinical surgeon as if his chief duty were to supply him with material." In THE LANCET of Sept. 1st, at p. 717, appeared a letter from Dr. POWELL WHITE defending the thesis that pathologists should hold a much more important position than they do at present, and a letter couched in similar terms appears to-day at p. 840. It is difficult—nay, even impossible—in a complex science dealing with a complex organism like the human body to decide which if any one department of that science is the chiefest. A steam locomotive cannot get on without fuel and water, but these two, though essential to its well-being, are no more so than wheels or cylinders. Further on in his address Mr. OWEN made the *amende honorable*, if such were needed, to the pathologist for the value of his work; but there undoubtedly is a danger in the case of the younger members of the profession of laying too much stress upon the results of post-mortem and microscopic or inoculation experiments. In the patient there is that mysterious *x* which can never be evaluated—namely, the quality or condition known as life—and this is apt to upset all the results which should happen according to the teachings of pathology.

On the other hand, the light that has been thrown on disease by research in the laboratory of the pathologist is brilliant beyond our power to exaggerate, for to the patient and laborious investigations undertaken in the study of pathology must be assigned by far the greatest share of the credit for the modern enormous advances in surgery, and this is true not only of the surgery of the present day and of recent years, but equally of the surgery of the latter half of the eighteenth century when it may be said that scientific surgery had its beginning. And especially has the work of the bacteriologist been of untold value to surgery. The study of micro-organisms during the last 50 years has done much to assist in the diagnosis of disease, in rendering exact the classification of maladies, and in distinguishing between closely allied conditions, and in so far as treatment depends on diagnosis the aid afforded by the bacteriologist has been definite and valuable. In treatment itself the advances in bacteriology have been of less moment if only because the conditions existing in the human body cannot be reproduced in the laboratory. Nor can we measure the recuperative powers of the body. The *vis medicatrix naturæ*, the power which the body possesses of resisting and overcoming the invading microbe, is of more account in the struggle with disease than many of us are ready to think; and Mr. OWEN in his address called the attention of his hearers to the great tendency towards recovery which is manifested by so very many cases of tuberculous disease. This is most clearly to be seen in some varieties of tuberculous disease of bone in which, from the situation of the lesion, no direct operative treatment is possible. If, as Mr. OWEN points out, a case of caries of the spine is taken under treatment early a very excellent result with a minimum of deformity may be obtained. If the case is not seen till later deformity cannot be prevented, but the patient may recover, and enjoy, though with a permanently deformed spinal column, a long life free from disease. Three years ago a tendency to heroic measures showed itself in the treatment of some of these cases of extensive spinal caries, and the professional and no small portion of the lay press were flooded with wonderful and almost horrible illustrations of the procedures advocated for the "immediate" reduction of these "gibbosities." Yet, except for here and there a slight notice of the benefit derived from this treatment, the medical profession has received no definite statement from the introducers and advocates of this treatment as to the ultimate results of such severe procedures. The time has certainly come when the profession has a clear right to be informed as to the present condition of those patients who were treated three years ago by forcible reduction of spinal curvature. Whatever the result has been it should be published.

Not the least important part of Mr. OWEN'S address was concerned with the prophylaxis of tuberculosis, and certain words which he spoke to his medical audience ought through them to reach the public. The value to Great Britain of the prevention of tuberculous disease is very great, for it is one of our greatest scourges, while Canada has a high death-rate from this cause. If phthisis is to be prevented the work of prophylaxis must be accomplished by the public. It must not be regarded as a matter with which medical men only are concerned. They, indeed, have their portion of the work and this they perform when they lay down the rules that should be followed, but it is the business of the people themselves to carry out these rules. Without the earnest coöperation of the people the extinction of tuberculosis is impossible. On only one of the methods to this end did Mr. OWEN speak, but he laid down clearly the rule that, save in exceptional cases, those who are undoubtedly tuberculous should not take upon themselves the responsibility of parentage. This is only one of the methods of prevention of tuberculosis, but its obviousness should appeal to everyone.

Annotations.

"Ne quid nimis."

THE MANCHESTER SEWAGE PROBLEM.

THE Manchester Corporation have at last made up their mind to deal with the difficult problem of sewage disposal, and, to their credit be it said, have adopted a scheme which not only deals with the question for the time being but will do so for some years to come, and one which also meets the requirements of the Local Government Board. At the meeting of the council on Sept. 5th the Rivers Committee submitted two schemes, one based on the report of three experts and one based on the requirements of the Local Government Board. The cost of the first was estimated at £337,000, and of the second at £487,000. Sir Bosdin Leech, chairman of the Rivers Committee, introduced the subject in fulfilment of the promise to bring both schemes before the council. These plans (he said) had been prepared by Mr. Wilkinson, and it was for the council to decide which scheme was best suited for the disposal of their sewage with efficiency and economy so as to satisfy the Local Government Board and the Rivers Committee. He stated that the question was urgent and of supreme importance to the welfare of Manchester. Dealing with the experts' scheme he said that it was the result of 15 months' experimental work. The Local Government Board, on the other hand, insisted on the purchase and laying out of land at Flixton and Carrington and the provision of 50 per cent. more filter-beds, because the Board doubted whether the beds would retain their capacity and considered it imperative that the Manchester Corporation should be on the safe side whatever the cost might be. It was quite possible that not more than from 30 to 50 per cent. of the bacteria beds asked for at Carrington would ever be put down, because if in the progress of the work it was proved that the experts were correct and the extra beds were not necessary the committee were encouraged to believe that they would not be called upon to provide the full number of contact beds, and in that case there would be a saving of from £60,000 to £100,000. He further stated that any scheme which did away with the need for chemical precipitation effected a saving of £7000 per annum or a capitalised sum of £200,000. With regard to the cost incurred by Manchester in dealing with its sewage he pointed out that whereas Manchester spent 8*s.* per head of the population on works for purification of sewage, exclusive of sewers, Birmingham had spent £1 8*s.* 3*d.* and Wolverhampton £1 10*s.* 5*d.* At Derby, moreover, they were proposing to spend a sum which will add 4½*d.* in the pound to the rates of that town. So far Manchester had spent £223,000. 4 per cent. on this (including sinking fund) represented ¾*d.* in the pound and assuming that the council spent a further £487,000 it would only mean a little over 1½*d.* in the pound, because a sum of £19,480 would meet the cost of interest and sinking fund. As an alternative they were threatened with a fine of £50 a day, or £18,250 a year, and at the end they would not be one step further on their way towards purification. The scheme devised to meet the requirements of the Local Government Board was cheaper in many respects than the alternative plan. The cost of dealing with the storm-water was £8000 less, and by spreading the works over a larger area the pick of the land was obtained and the excavation reduced. The increased cost of No. 2 scheme was owing to the provision of 92 acres of filter-beds at a cost of £264,500, instead of 60 acres for £194,700, as designed in No. 1 scheme. To the difference, £69,800, must be added the cost of laying out the land at Flixton and the syphon under the Mersey, £20,200, and the conduit, £22,600—in all, £112,600, which was practically the difference between the two schemes. One on the ground of safety provided land and works in advance of present requirements, the other land only. For maintenance, No. 1 scheme would cost £16,805 per annum and No. 2 would cost £20,000. This latter was roughly the amount spent at Davyhulme now for maintenance, including precipitation. The majority of the Rivers Committee favoured No. 2 scheme, but they would carry out loyally whichever scheme the council passed. Sir Bosdin Leech concluded his speech by stating that the Rivers Committee "want to have the question settled. Laboriously and long they have honestly sought after light and truth. They desire to see Manchester take her right position in the van of progress even in sanitary matters, and they ask their colleagues in the council to give them their assistance and decide which scheme should be adopted." An attempt was made to seek Parliamentary powers to carry out the culvert scheme but this was lost by 18 votes to 42. A resolution to carry No. 2 scheme or that of the Local Government Board was carried, and also a resolution asking the Local Government Board for their sanction to borrow under the Public Health Act of 1875, on security of the city rate, a sum of £487,283 17*s.* 4*d.* for the carrying out of the scheme.

THE WINDOW, THE ROOM, AND THE SUN.

THAT light is an essential of health has long been recognised vaguely, but we are now gradually learning to some extent to what the health-giving properties of the sun's rays are due. The depressing and demoralising effects of darkness have been known from time immemorial, and the dungeon was perhaps the worst form of punishment to which a human being could be subjected. It is only comparatively recently that attention has been given to the necessity of providing an abundant supply of unfiltered light as well as air to our dwelling-places. A little over half a century ago many of the tenements of London were no better than dungeons from the point of view of the provision made for the entrance of light. Indeed, as is well known, glass windows were taxed, this action of the State being itself an incentive to darken the house. The question remains how best to secure the health-giving properties of light whilst excluding variable conditions of weather which would give rise to discomfort. In a paper upon this subject which was read at the recent meeting of the Tenth International Congress of Hygiene and Demography in Paris M. Trélat, a well-known authority on hygiene, gave it as his opinion that the best light for the house is the slanting light as opposed to the vertical and the horizontal lights. Of course the light proceeding in a straight line from the zenith could not be made available, while the light proceeding in a straight line from the horizon, as at sunset, similarly could not be utilised, besides which this light is not so pure, for, as M. Trélat holds, it is deteriorated by passing through successive layers of dust and vapours escaping from the soil. According to this view houses should be constructed to receive the rays of light at an angle of 30 degrees—that is to say, from a space corresponding with the mid-heavens—and, in order to obtain this light, houses should not be higher than two-thirds of the width of the street. If a street, for example, were 30 feet wide the houses on each side should not be higher than 20 feet. We are afraid that there are very few houses and streets complying with this standard. The suggestion is, of course, not to cut down our houses, but to widen our streets—a suggestion with which everybody would be in accord were it possible economically to carry it out. The question of the presence of microbes at different air levels must not, however, be ignored. Bacteriological experiments have shown that the

air near the ground is loaded with micro-organisms, the number diminishing as we ascend. The difference is most marked even in the case of a five-storey building, the air in the top storey being comparatively free from microbes, while that on the ground-floor swarms with them. This state of things would be altered if the sunlight were admitted properly on all floors, for sunlight is a powerful bactericide.

THE FOOD PRESERVATIVES COMMITTEE.

DR. H. T. BULSTRODE, of the Food Preservatives Committee, and Mr. C. J. Huddart, its secretary, have visited Amsterdam, Hamburg, and various places in Denmark for the purpose of studying the dairying industry and the methods of transport of dairy produce, with special reference to the milk and butter supplies in Holland, Germany, and Denmark, and the butter export trade, in relation to the use or non-use of chemical preservatives. The committee and their secretary are proceeding to Ireland during the present week with a like purpose in view, and propose to give special attention to the south and west of Ireland, although visits will also be paid to the province of Ulster in the same connexion. The Committee will probably spend the rest of the month in studying the above matters in Ireland prior to reporting.

TUBERCULOSIS IN THE RUSSIAN ARMY.

IN a paper compiled from official sources by Dr. H. K. Chtchepotiev and published last February in *Vratch* the sick-rate from tuberculosis in the Russian army during the octennium 1890–97 is said to have amounted to 4 per 1000 annually and the death-rate to 1·07 per 1000. Contrasting these high rates with the condition of things prevailing in other countries the author finds that the annual admission rate for tuberculosis in the German army is 2·3 per 1000 of strength, in the Austrian army 3·4 per 1000, and in the French army 5·0 per 1000, the death-rate varying from one-sixth to one-third of the total mortality from all causes. In the French army, according to Makiewicz, out of 1000 soldiers invalided for tuberculosis 116 had acquired the disease before enlistment, while 197 developed tuberculous symptoms during the first six months of their service and 278 during the second. In the course of their second year 254 more were found to be affected, leaving only 155 who remained immune until they had served two years and upwards. At Kiev Dr. Chtchepotiev found that during the period from January, 1895, to November, 1899, the number of admissions to the military hospital on account of tuberculosis was 527. Of these 111 men had less than six months' service and 32 less than a year. The second year furnished 127 tuberculous cases, the third 111, the fourth 95, the fifth 33, and the sixth and upwards 18. 12 of the young soldiers in the first series died in hospital, the remaining 99 being sent to their homes while still able to travel. Dr. Chtchepotiev is strongly of opinion that the great prevalence of tuberculosis in the Russian army is due to the entry each year of a number of recruits who carry in their systems the seeds of the disorder. Although a great many of the affected soldiers have tuberculous antecedents, hereditary or otherwise, it is also true that of the men attacked after serving a year or more fully half are strong and robust with nothing about them to suggest predisposition or the inheritance of a family taint. Unfortunately it is not always an easy matter to recognise incipient phthisis pulmonalis. A recruit who presents easily diagnosed symptoms of tuberculosis can to a certain extent be guarded against, but the harbourer of latent germs is a veritable *anguis in herba*. Living as soldiers do more or less promiscuously, sleeping in numerously occupied dormitories where they must inevitably respire air that has already passed through human lungs, it is of the utmost importance that every one of those lungs should be as sound as possible. In order to completely eradicate tuberculosis from the army the most strict inquiry into the previous medical history of every recruit should be insisted on and provided for, together with a far more searching examination of his physical condition than at present obtains. The small additional cost thus entailed would be recouped over and over again, even though but a quarter of the present loss of efficiency from a preventable cause were to be attained. As a palliative it would be well to provide for the early elimination of tuberculous subjects. At present the custom in the Russian army is to retain them as long as they can manage to carry out their duties. Incidentally Dr. Chtchepotiev confirms the fact already noticed by several writers, that Jewish soldiers are seldom the victims of tuberculosis.

OVERLYING AS A PENAL OFFENCE.

CASES of overlying have hitherto been dealt with exclusively in coroners' courts, though the opinion has long been gaining ground that this mischievous practice ought in some way to be brought under the control of the criminal bench. Neither does it seem necessary for this purpose to have recourse to special legislation. The fact that death has been caused by overlying is in itself an evidence of parental negligence. There may be cases so purely accidental and so painful in the memory of the bereaved parents that further interference than that of the inevitable inquest would be injudicious. One which was recently investigated at Worship-street Police-court does not come within this category. The mother had already lost two other children in the same way and could not fail to be fully aware of the danger to which she exposed her children by taking them to bed with herself and of the very moderate amount of care which would provide them with a separate sleeping-place. It is not surprising that this woman was committed for trial at the Central Criminal Court. The case, whatsoever its issue, may help to quicken in some callous parents a sense of their responsibility and to arrest a far too prevalent cause of infant mortality.

THE METROPOLITAN WATER-SUPPLY.

THE Water Examiner appointed by the Local Government Board has just issued his report on the condition of the metropolitan water-supply for the month of July. The Thames water, he says, was in good condition during the whole of the period. The amount of water passing down the river was below the average; at its highest flow the level was three inches and at its lowest nine inches below the average summer level. The daily average of water supplied per head was 40·59 gallons. In regard to the amount distributed by the different companies the Chelsea, Grand Junction, Kent, and New River supplied during July, 1900, a slightly larger amount per individual than during the corresponding month of the year 1899. The East London, Lambeth, Southwark and Vauxhall, and the West Middlesex companies supplied slightly less. With regard to the percentage of houses constantly supplied by the London water companies, the Chelsea and Grand Junction alone profess to give constant service throughout the whole of their district. The East London supplies 99 per cent. of its customers constantly, and this percentage is the same as it was a year ago. The Kent, Lambeth, and Southwark and Vauxhall companies do not give constant service in all cases nor has any improvement in this respect taken place in the case of any of these companies during the last year. The amount of constant service given in the case of the Kent company is still 94 per cent., the Southwark and Vauxhall 93 per cent., whilst the Lambeth company sti gives constant service to only 75 per cent. of its customers.

During the year some improvement has been made in the case of the New River company, which now gives constant service to 95 per cent. instead of 92 per cent. of its customers, an improvement of 3 per cent. The greatest amount of progress in this respect during the year has been made by the West Middlesex company which on July 31st last gave constant service to 97 per cent. of its customers, whereas on the corresponding date in the year 1899 constant service was given to only 89 per cent. This improvement is satisfactory. It seems strange that no less than 25 per cent. of the customers of the Lambeth Company should be content to receive water on the intermittent system. Any water consumer who feels aggrieved in the matter has legally the remedy in his own hands if he will only use it. Dr. T. E. Thorpe, the analyst appointed by the Local Government Board, gives an analysis of one specimen each of the water supplied by the metropolitan water companies. The analyst's report, we notice, is signed "pp. T. E. Thorpe, H. J. Helm." The analysis shows that the water drawn from the mains of the Lambeth Company contained the highest proportion of organic carbon. The water of the Lambeth and that of the Southwark and Vauxhall companies showed the deepest average tint of brown.

RECURRENT LUXATION OF THE ULNAR NERVE.

THE *Boston Medical and Surgical Journal* of August 2nd contains an important paper on this rare condition by Dr. F. J. Cotton. Three original cases are recorded and the literature of the subject is exhaustively considered. Case 1.—A woman, aged 25 years, had much pain on using the arm after a fall on the elbow. A week after the accident the elbow was puffy and tender. A tender cord was felt in front of the inner condyle. On extension of the elbow it slipped back into the normal position of the ulnar nerve. Whenever the elbow was flexed to a right angle the luxation occurred and when it was extended reduction took place. An obtuse-angled splint was applied and a pad was placed over the internal condyle. After a fortnight there were little pain and less tendency to luxation. Only the pad and bandage were continued and light use of the elbow was permitted. The symptoms improved slowly and steadily, and the patient soon discontinued treatment. Four months later she could use the arm well, and complained only of occasional darting pains in the hands. On flexion of the elbow the nerve slipped only as far as the tip of the epicondyle. Case 2.—A girl, aged 11 years, fell on her elbow. Three days later she went to hospital with a slightly swollen elbow. Motion was slightly painful and there was spontaneous pain in the middle and ring fingers, but none along the distribution of the ulnar nerve. On flexion to 60° the nerve, which was abnormally tender, slipped a little in front of the epicondyle. An internal right-angled splint was applied. After three days the pain had disappeared and there were much less tenderness and perhaps slightly diminished range of luxation. The use of the splint was continued and massage was begun. Improvement was considerable, but luxation still occurred on flexion. Case 3.—A boy, aged 10 years, was seen three days after a fall on the elbow. There was a slight luxation of the nerve which did not pass beyond the tip of the epicondyle. The symptoms were local tenderness and pain on movement. The further history is not known. As early as 1851 Blattmann described a case of luxation of the ulnar nerve, but the first adequate accounts of recurring luxation are those of Lutz published in 1879 and of Zuckerkandl published in 1880. The cases form two groups, those for which no exciting cause is known and which may or may not be associated with symptoms, and the traumatic cases where there are almost invariably symptoms of greater or lesser severity. The trauma may be direct violence, muscular over-exertion, or simply habitual over-use of the elbow. In most cases, when a certain degree of flexion is reached the nerve moves inward to the tip of the epicondyle, and in the severer ones passes over it on to its anterior surface, only to return to its normal position on extension. Permanent luxation is very unusual. As to the symptoms of the non-traumatic or congenital form in one case there were marked weakness and considerable atrophy of the muscles supplied by the ulnar nerve, in a second case there were numbness and weakness sufficient to prevent work and to necessitate an operation, in a third there was fatigue on exertion, and in a fourth there were numbness and pain. In many cases symptoms beyond those arising from accidental pressure on the nerve are absent. As to the frequency of this form, Collinet on examining 500 patients found that in 13 the nerve was luxated on flexion, and in five of them on both sides. In the traumatic cases the symptoms (which are illustrated by the cases above described) subside more or less independently of treatment. In the non-traumatic cases the dislocation appears to be due to laxity or absence of the fibrous tissue which surrounds the nerve, and to the fact that the triceps spreads inwards on flexion of the elbow and pushes the nerve in front of it. In the traumatic cases some tearing of the fibrous tissues seems to occur either from muscular exertion or from the force of a blow. The treatment in these cases has been immobilisation with or without massage or operation to re-form the fibrous groove of the nerve. In some cases the fibrous tissues have been trimmed, the edge of the triceps has been hitched to the internal condyle, leaving the nerve beneath the bridge so formed, or a slip of fascia has been dissected up from the covering of the epitrochlear group of muscles and stitched to the triceps. These operations cured the luxation and such symptoms as depended on it, but in many cases conservative treatment gives quite as good results. Moreover, symptoms may be present, due to damage of the nerve, which cannot be benefited by operation.

DANGEROUS GAS PENDANTS.

IF we do not go so far as to say that the "gas chandelier," or water-slide pendant as it is called, should be made illegal, we certainly think no prudent householder should put one of them into his house. It is never at any time by any twist of the imagination ornamental, it frequently occasions alarm, and in not a few instances it has been the cause of death. As everyone knows the principle of this "chandelier" is that of a water seal, which, of course, fails when there is no water in it. Few people remember to replace the water which easily evaporates in a warm atmosphere. Even supposing, however, that there is water in the sliding tube the chains supporting the weights which keep the pendant in position may easily get defective and thus the bracket may drop below the water seal and the gas be allowed to escape. This is probably what happened in the melancholy occurrence reported from Birmingham last week. It was shown that a water-slide pendant had become defective owing not to want of water in the tube but to the flimsy chain fittings. These defects accounted for the death of a man and very nearly for that of his wife. Both had retired to bed in good health, but before the morning they were poisoned with the escaping coal-gas which doubtless they had inhaled during most of the night. We have before recorded cases of this sort, and surely it is time that this clumsy contrivance known as the "chandelier" should be banished. It is a most dangerous fitting and quite unnecessary in view of the improved modern appliances which are now made for conveying gas from the supply-pipes to the burner. A good deal has been said of late against the increasing practice of carburetting gas, a method which raises the proportion of carbon monoxide

very considerably in illuminating gas. It is said that gas of satisfactory illuminating value could not be supplied without recourse to this plan, for not only are all kinds of coal more expensive than formerly, but the supply of the more bituminous varieties is distinctly running short. It must be remembered that coal-gas is poisonous under any circumstances, and that being so care must be enjoined in its use. But the fact that our present supply of coal-gas does contain much more carbon monoxide than was hitherto the case warrants more forcibly our argument in favour of the abandonment of the "chandelier."

SIR GEORGE HARE PHILIPSON.

THE members of the medical profession in the north of England have decided to invite Sir George Hare Philipson to a complimentary dinner in celebration of his having received the honour of knighthood and in recognition of his services to the medical profession. The following committee has been formed to carry out the arrangements: Dr. G. H. Hume (chairman), Dr. D. Drummond, Mr. F. Page, Dr. R. S. Peart, Dr. W. C. Beatley, Dr. T. Beattie, Dr. J. Munro, Dr. J. Hedley, Dr. W. Robinson, Dr. J. Murphy, Mr. G. P. Elliott, and Professor T. Annandale. Honorary secretaries: Dr. W. Crump Beatley, 4, St. Mary's-terrace, and Dr. T. Beattie, 3, Ellison-place, Newcastle-upon-Tyne. The dinner will take place on Tuesday, Oct. 2nd, at 7 P.M.; tickets, £1 1s., including wines. Those desirous of being present are requested to apply to either of the secretaries before Sept. 22nd.

THE TREATMENT OF ACUTE ALCOHOLISM BY LARGE DOSES OF DIGITALIS.

THAT acute alcoholism can be treated in robust and otherwise healthy subjects by large doses of digitalis with apparent success is well known, but the perils of the treatment are obvious and its value is doubtful. In the *Journal of the American Medical Association* of August 11th Dr. Henry P. Loomis of New York revives a discussion of the subject by detailing some cases. During the spring of the present year Dr. Loomis, while on duty as physician to the alcoholic wards of Bellevue Hospital, New York, used the tincture of digitalis in half-ounce doses in a series of ten cases of acute alcoholism. These were selected so as to include different classes of individuals—the strong and the robust, the weak and the anæmic, the young and the old. In the treatment of patients suffering with delirium tremens the routine practice was to give a half-ounce dose of the tincture of digitalis every four hours till three doses were taken. "If the patient became quiet and the delirium disappeared the remedy was stopped before the third dose. If not another series of three doses six hours apart was ordered. In the cases that showed the best results not more than three doses were necessary. The guide to the repetition of the dose was its narcotic effect." No marked dropping of the pulse was noted in any of the cases, but in the successful ones the pulse increased in force and became stronger, fuller, and more regular after the first dose. The cold, clammy perspiration disappeared, the skin became warmer, and the patient went to sleep. In three out of the ten cases treated the result was so pronounced and so quick that there seemed to be no question that it was entirely due to the effect of the digitalis. In some of the cases the remedy was a failure. Two cases died, one of these being complicated with acute articular rheumatism. From the experiences gained in the ten cases at Bellevue Hospital, as well as in six cases treated previously in the same way, the following conclusions are drawn by Dr. Loomis. The cases suitable for treatment with large doses of digitalis are the strong, the robust, and those in early adult life with no complications, and those with violent delirium. In such cases the results are exceptionally favourable. The patients become quiet and go to sleep with a certainty and promptness obtained by no other method. The remedy should not be adopted in the case of chronic alcoholic subjects, in those of middle or advanced life, or in those with anæmia and bad nutrition, as in such cases the remedy may be useless or even harmful. One fact which showed the marked benefit derived from the treatment was that when the patients recovered and awoke from their sleep they were in such an improved state that they were able to leave the hospital on the same day, whereas ordinarily there was a delay of two or three days before this was possible.

ARE COPPER SALTS POISONOUS?

IN a paper upon this subject read before the British Association of Science at the Bradford meeting Dr. T. W. Hime sought to justify the use of copper salts for preserving the green colour of vegetables apparently on the ground that Nature herself placed copper in many of her products. Indeed, Dr. Hime asserted positively that there was no sufficient ground for the prohibition of the sale of coppered vegetables any more than for the prohibition of the innumerable kinds of fruits, vegetables, shell-fish, cereals, mineral waters, wines, and animal flesh which naturally contained the metal in some form. If the latter drastic arrangement were attempted, he added, absolute and general starvation would be the inevitable result, so widely was the natural presence of copper in articles of food extended. On these grounds Dr. Hime might justify arsenic as a useful food preservative, since it is now known to be a normal constituent of the body, but of course, like copper, in infinitesimal amount. We do not object to the plan of preserving the colour of peas by copper, but we do object to the consumer not being made plainly aware that such is the case with the provisions he consumes. Some people like their meat roasted, others do not care a tittle whether it be baked or gas-cooked; but it is clearly deception when a person is told that a piece of beef has been roasted which instead has been cooked in the gas-oven. Neither does Dr. Hime seem to pay special regard to the important question of personal idiosyncrasy. If the quality of our food-supply is to be State-protected with any degree of efficiency this is a point which must not be lost sight of, for in all the attempts to keep up the health of the community all sorts and conditions of men must be reckoned with. We hope to see very soon a statute which shall definitely control all methods of colouring and of preserving food.

A CASE OF WERNICKE'S CONDUCTION-APHASIA WITH NECROPSY.

DR. HOWELL T. PERSHING has published in the July number of the *Journal of Nervous and Mental Diseases* a case illustrating the rare and interesting condition described by Wernicke as "conduction-aphasia." Dr. Pershing regards the present case as perhaps the most typical instance hitherto recorded of true conduction-aphasia. The case was that of a man, aged 45 years, of robust health, who was brought to hospital in an unconscious condition on Nov. 19th, 1897. The history of the patient was that two days before, while driving, he became unconscious and fell from his waggon into the bed of a small stream where he lay for about 36 hours before being found and removed to the hospital. On examination he was completely unconscious, the right arm and leg were rigid and tremulous, and the head and eyes showed slight conjugate deviation to the right. The pulse was normal, the respirations were 20 a minute and stertorous, the temperature was 99·5° F., and the head was free from signs of injury. A diagnosis was made of a vascular lesion (probably syphilitic thrombosis) in the left hemisphere and the patient was treated with iodide of

potassium and inunctions. In the course of a week consciousness completely returned, "but the man's talk was a mere jargon which he shouted in a loud voice. There was also some word-deafness; he generally failed to do what he was told, but responded readily when shown by a gesture. No paralysis could be detected. During the second week in the hospital the word-deafness disappeared and no sign of a cerebral lesion then remained except jargon-paraphasia and certain associated defects." Some weeks later he apparently understood any question that was asked him and would make an energetic attempt to answer it, but his talk was never intelligible. He could use the terms "Yes" and "No" accurately in response, "but on attempting to express himself at any length, although the first few words were often intelligible and apparently appropriate, he soon passed into a fluent but incomprehensible jargon in which only here and there a correct word could be heard. ..... He was entirely unable to name familiar objects. On being asked to read aloud from a newspaper ..... his reading was markedly paralexic; a few short words were correctly pronounced and the pronunciation of others bore an obvious resemblance to the correct sounds, but these were so mingled with unintelligible sounds that the whole conveyed no meaning to a listener. The simplest directions given in writing elicited no response. ..... He wrote his own name quite legibly, only putting an extra 's' on the end. He was absolutely unable to write anything else, either spontaneously or at dictation. ..... Acuity of vision was good, there was no hemianopia, he had a keen eye for all that went on about him, and often laughed at another patient whose appearance and actions were comical." Two months after his first attack he had a second attack (Jan. 23rd), during which he died. The necropsy revealed an oval spot of softening, 18 by eight millimetres, in the left cerebral hemisphere immediately above the fissure of Sylvius and two and a half inches (6 centimetres) behind its vertical branch. The softening extended an inch deep into the brain substance and probably destroyed communication between the first temporal and third frontal convolutions.

LANCASHIRE ASYLUMS.

SOME interesting statements are made in a report just presented to the Lancashire Asylums Board by a deputation from that body appointed to visit the asylums on the continent and to make recommendations as to the building of a sixth Lancashire asylum. One fact mentioned is the serious increase in the number of patients of late years. In 1859 the total number was 1587, but a gradual increase has now brought the number to 8665. Before the end of next June it is hoped that a portion of the Winwick Asylum will be opened for 1000 patients, to be followed in June of the following year (1902) by the opening of the other portion of the building, also to accommodate 1000 cases. The cost of land, buildings, and furnishing will reach £400,000. The deputation, consisting of Alderman Jenkins of Salford, Dr. Cassidy, superintendent of the Lancashire Asylum, and Dr. Wiglesworth, superintendent of the Rainhill Asylum, visited asylums in Germany, Belgium, and France. They were struck with the large proportion of medical officers in the German as compared with the English asylums, being about one to 105 in the former and one to about 300 in the latter. They consider the English asylums to be under-officered to such an extent that there are difficulties as to the study of individual cases. They found also in the German asylums much more evidence of active scientific work than is usual in this country. They were favourably impressed with the "villa colony system" as they saw it in Germany and definitely recommend it for the projected new asylum; which they think should be entirely for epileptics and imbeciles, preference being given to those capable of a certain amount of work so that the beneficial effects of colony life may receive full scope. They see no necessity for a large central institution and recommend that no building should contain more than 50 patients, while the majority should have from 25 to 40. Also that the new asylum should accommodate 1000 patients with provision for extensions. They think that 250 acres would suffice but advise that 300 be acquired. There is every disposition to meet the requirements of the case, and no time will be lost in making the new asylums ready for patients, for there is great difficulty in finding accommodation for the new cases, for the four asylums now occupied have been "full and congested" for a long time. It would only be reasonable to look a little ahead and keep the accommodation somewhat in excess of present requirements, which position will scarcely be gained even when the sixth asylum is completed.

A FRIEND OF SCIENCE.

THE education and research fund of Guy's Hospital Medical School has received from "A Friend of the Hospital" the sum of £5000, the interest of which is to be used to "increase and spread the knowledge of the means of preventing and treating disease." The friend of the hospital shows himself to be a true friend of science.

PROPOSED SMALL-POX HOSPITAL AT BARRY.

So long as the English system of vaccination is, for the the great majority, vaccination in infancy only, so long must public health authorities be prepared for the occasional occurrence of epidemic of small-pox among the adult or adolescent population. Precautions to meet such epidemics are especially needful in the case of towns where many workmen are in close relation with each other through common employment, and at seaports where risk of introduction of small-pox is considerably greater than is the case of inland towns. Barry is a town to which these considerations specially apply, and it is satisfactory to find that the necessity of making isolation hospital provision for small-pox is there generally recognised. It appears, however, from local newspapers that the character of the proposed hospital is being made the subject of a warm, if not an acrimonious, dispute. Much opposition, in which some members of the profession have joined, is being made to the proposal of the town council to erect a permanent building at the cost of some £9000, under loan sanctioned by the Local Government Board. Such a hospital is objected to on the ground of expense, and it is urged that small-pox isolation will so seldom be needed that "temporary" provision is all that is necessary. We have sympathy with the movement to keep down the growing burden of local rates, but on the general ground of sanitary efficiency, and apart from local considerations of a particular case, we should certainly hold a scheme for erecting a permanent building as the more worthy of support. "Temporary" hospitals for small-pox are in many ways undesirable. Either they are "temporary" in the sense that everything is left to be done at the last moment in face of an epidemic—with what inadequate and objectionable results outbreaks such as those at Warrington and Gloucester have repeatedly shown—or satisfactory provision is made beforehand, as in a permanent hospital, the difference being that the buildings are of corrugated iron and not of brick or stone. In the latter case, even if the first cost were reduced by half, where is the economy to the ratepayer? Not at the beginning, for he will have to pay the whole cost of the hospital out of current rates and cannot spread it over a long period of years by loan. Later it is inevitable that considerable sums must be spent in keeping the temporary building in serviceable condition, and

finally, when it is past use there will be nothing to show for the expenditure and the whole affair must be begun again. As to the long periods for which it is said that the proposed hospital would be unused, we also have some doubt. There are epidemic diseases besides small-pox which from time to time tax all the resources of a district, and on such occasions even a liberal provision of beds at a hospital for ordinary infectious diseases often proves quite inadequate.

OUR FRIENDS AND OUR FOES AMONGST MICROBES.

STERILISE, sterilise, would appear to be the teaching of bacteriology in regard to what we breathe, what we eat, and what we drink. But it is a moot question whether in the main life is best preserved by killing on all sides the ubiquitous microbe. Certain it is that some foods lose their important dietetic properties on being sterilised, and we have yet to learn whether there are not microbes in the air playing a rôle in the process of respiration. And if in air why not in food and drink, playing a rôle in the processes of digestion? Some illustration of the unsatisfactory state of our knowledge of these important questions was given in the first and third sections at the recent meeting of the Tenth International Congress of Hygiene and Demography in Paris. To quote a single example, engineers on the one hand, during the discussion of certain papers on the question Should all drinking water be sterilised? rose and challenged the bacteriologists to say once and for all whether or not all bacteria were injurious. The conflicting opinions contained in the answers of the different bacteriologists left the interrogators in doubt, but certainly justified their question. One speaker put the position very pertinently when he reminded his audience that, when Simon de Montfort during the Crusades had captured a town, and was asked the question as to what should be done as all the inhabitants were not heretics, but some of them good Christians, he replied: "Massacre them all and God will recognise His own." In the present state of our knowledge this seems exactly to define our attitude in regard to the treatment of organic life existing in air, food, and water. The fact that micro-organisms are being employed now with great profit in many industrial pursuits, and more important still in the satisfactory disposal of offensive human excreta, only adds perplexity to the question how far sterilisation can safely go. Doubtless it will be shown that in order to prevent disease set up by organisms we must pick out a means of killing only that species which is pathogenic. Failing this we are probably safest in adopting the plan of Simon de Montfort. We burn the wheat as well as the tares because it must be confessed for the present that we know no better; we cannot exactly differentiate the good from the bad.

ANTI-VIVISECTIONISTS AT CARDIFF.

ALTHOUGH the public health laboratory organised by the borough of Cardiff and the county of Glamorgan has been established only about a year it has already done good work and has thoroughly justified its existence. The possession of a licence for the performance of experiments upon animals has, however, drawn upon it the opposition of a section of the inhabitants of the town and neighbourhood, and at a meeting held at Cardiff last week which was called at the instance of the British Union for the Abolition of Vivisection the following resolution was passed:—"That this meeting pledges itself to demand and exert itself to obtain the withdrawal of all licences for the protection of vivisection in Cardiff." We should hardly have deemed it necessary to direct attention to this gathering but for the extraordinary manner in which the meeting was conducted. Lady Windsor occupied the chair and at the outset invited those present to listen to the speeches about to be made with open minds, and it almost appeared as though for once there was to be at an anti-vivisection meeting a fair and square discussion. This anticipation was unhappily falsified by the event, for after Lord Tredegar and others had spoken in favour of the resolution, Mr. T. Garrett Horder asked to be allowed to make a few remarks but was promptly told that the meeting was called to forward the aims of the society for abolishing vivisection and not to hear any general discussion. With a meeting in such an exclusive humour as this it is not at all surprising that the suggestion of a reverend gentleman was accepted with enthusiasm when he proposed that ministers of religion be asked to bring to the notice of their congregations the petition to the Home Secretary asking that the Cardiff licences should be revoked. According to the local newspaper reports the Mayor of Cardiff was among the audience and Lord Tredegar is a prominent member of the Monmouthshire County Council. These gentlemen, it is to be hoped, will urge the claims of the petition before the important public bodies upon which they sit. County councils and corporations are in the habit of discussing matters brought before them and the British Union for the Abolition of Vivisection might gain some information from the debates.

THE representative board of the British Dental Association desire to remind members of the medical profession engaged in researches for the advancement of dental surgery that they are prepared to receive applications for grants in aid of such research. Applications for sums to be granted at the next annual meeting must be made on the printed forms to be obtained of the honorary secretary at the office of the Association, 40, Leicester-square, London, on or before Dec. 31st next.

THE first session of the Medical Faculty of the University of Birmingham will open on Monday, Oct. 1st, when an address will be delivered by Professor B. C. A. Windle, M.A., M.D. Dub., Dean of the Medical Faculty and Professor of Anatomy in the University.

A TELEGRAM from Sir H. A. Blake, the Governor of Hong-Kong, to Mr. Chamberlain, received at the Colonial Office on Sept. 10th, 1900, states that four cases of bubonic plague, with four deaths, occurred last week.

THE death is announced, at Constantinople on Sept. 2nd, of Mr. Richard Sarell, M.D. Edin., M.R.C.P. Lond., one of the best known surgeons in the Levant. He was aged 70 years.

THE WAR IN SOUTH AFRICA.

THE war is moving to its inevitable end and with it one of the most difficult and hard-fought campaigns in which this country has ever been engaged will take its place in military history. Events have of late been proceeding with something like dramatic rapidity. Ex-President Kruger is reported to have arrived at Lorenzo Marques and the Boer forces are retreating and crumbling away, so that things must be nearing an end. Lord Roberts is apparently of that opinion, for he has gone to Pretoria, to meet the South African Commission, which arrived there on Sept. 8th. The commission has already examined Sir William Thompson, Dr. Kendal Franks, and Lord Roberts. The commander-in-chief's evidence, as reported in the *Times*, dealt at length with the rapidity of his advance. Due supplies of food and ammunition had to be provided, and as this was the first consideration in war the transport of other articles was necessarily restricted. There is no need to enter into any discussion of a controversial character

at the present moment in regard to matters medical; it would, indeed, be futile to do so until all the facts are known. We shall learn in due time how far it would have been possible to have foreseen and prevented the occurrences which took place at Paardeberg and Bloemfontein by the timely provision of sanitary arrangements. Unfortunately it is one of the contingencies of war that mobility—especially in fighting with ubiquitous Boers—is essential to success and that an enemy will not suspend its military operations until the other side is ready to begin. Were it otherwise there would be little or no difficulty in perfecting all the necessary hygienic arrangements.

Meanwhile, we are glad to say that the British troops are healthy and in excellent fettle and that the war is being prosecuted with vigour. So long, however, as the Boer generals can muster any forces in the field we may expect occasional raids and surprises and attempts at cutting lines of communication. An army of occupation may have a lively time of it at first, but these attempts will gradually decrease until they cease altogether.

THE TREATMENT OF PRISONERS BY THE BOERS.

The War Office issued on Sept. 12th despatches giving an account of the evidence before, and the findings of the Court of Inquiry ordered by Lord Roberts to investigate the treatment of the British prisoners of war at Pretoria. Lord Roberts in his comment on the report states that the officers were fairly well treated, but that the men were badly treated. The treatment of the prisoners belonging to Colonial corps raised in South Africa Lord Roberts considers to have been opposed to the usages of civilised warfare in that they were treated as criminals, and the same remark applies to British subjects resident in the Transvaal who were treated in a like manner because they refused to take the oath of allegiance to the Republic. Lord Roberts also considers that the inhuman treatment of the sick prisoners throws the greatest discredit on the authorities at Presoria, since they must have known that proper hospital accommodation and equipment had not been provided, that suitable food and medical comforts were not forthcoming, and that the supply of medicines and medical comforts was wholly inadequate. The commander-in-chief's conclusions form a severe indictment of the Republics, but the documents which are included in the despatches, and to which we shall make further reference, appear to warrant the conclusions.

SOME NOTES ON THE CAMPAIGN IN AUGUST.

BY ALFRED D. FRIPP, M.S., F.R.C.S.,
SENIOR SURGEON TO THE IMPERIAL YEOMANRY HOSPITAL.

This is a windy month, therefore there is much dust and discomfort; also it is so cold at night that occasionally the water freezes in the vessels inside the tents. There is a welcome lull in the work which the hospitals are called upon to do.

There are no fewer than four Yeomanry Hospitals at work in South Africa now and before very long there will be a fifth. This base hospital, which has had accommodation for 1000 beds since July 1st, has detached part of its staff, including Mr. Turner as medical officer and one of the surgeon's dressers and three of the nursing sisters, to take over the management of the hospital at Maitland camp with 25 beds, and the establishment will shortly be increased in view of the remassing there of the Yeomanry prior to their departure for England. The Yeomanry Field Hospital is established at Pretoria and has similarly detached part of its staff, including Mr. Openshaw, to manage a hospital which has been opened in one of the buildings in that town and which, according to a telegram from Surgeon-General Wilson, "is doing excellent work." Lastly, the staff of the new branch hospital (intended originally for Pretoria, then allotted to Johannesburg, and now re-allotted to Pretoria) have been lodging with us since they arrived in batches on July 20th and 27th. To-day the first half go forwards and will be picked up at Bloemfontein by Surgeon-Major C. R. Kilkelly, who will escort them to Pretoria, where Dr. Barclay Black is already at work with one of our own sergeant-majors scheming out the sanitation on exactly the same lines as have proved so successful under their guidance here. There will eventually be accommodation for 400 beds in this Pretoria branch. The staff consists of 40 nursing sisters (for whom sleeping-room has been found here by emptying one of the huts of the patients), nine doctors, and 80 orderlies (who have been put up in some of our tents). As it is over four weeks since we took in a trainload of fresh cases work throughout this hospital is very light. Indeed, if it were not for the regular daily arrival of small batches of Yeomanry we should not even be, as we are, half full. There are not 10 serious cases in the entire hospital, and we are just completing our fourth consecutive week without a death, so that our own 45 sisters have no more work than they can easily accomplish and as there is nothing for the 40 visitors to do time hangs heavily upon their hands. A few of them have taken the work of our original sisters while the latter have gone away for a few days' change—generally to those two very popular places, Kimberley and Mafeking. Similarly the opportunity offered by the presence of so many extra orderlies in our midst has been seized for giving a little well-earned rest to our own men who have been kept hard at work without a break of any sort since their arrival here on March 1st, and also for getting a few odd jobs done about the camp, notably the making of a good road to the cemetery which lies a quarter of a mile away and which now contains 59 graves. Had these extra sisters and orderlies been lodging with us three, or even two, months ago there would have been plenty of work to occupy them in the wards as reinforcements to our own staff, but in those days it would have been a very difficult thing for us to house them.

It was a great piece of good fortune that the disbanding of the Portland Hospital should have come, if it had to come at all, just in time for Surgeon-Major Kilkelly, who has been in charge ever since its mobilisation last autumn and who has made such a great success of it, to transfer his able services to the new Yeomanry Branch Hospital. There are many points in the running of a mixed civilian and military hospital which call for the possession of exceptional qualities by the man who is selected to act as the commandant, and which, even when the man has those qualities, must present less difficulty if he has also previous experience of the special needs of these mixed establishments. This is the first war of modern times in which they have played a really important part. By voluntary civilian effort the necessary *personnel* and material have been sent out from the old country alone (exclusive of the field hospitals which accompanied the colonial corps) for equipping roughly 2000 beds. 1000 of these are to be found in the Imperial Yeomanry Hospitals, and the other 1000 are distributed thus: 300 in the Glasgow Hospital, 100 each in the Portland Hospital, the Langman Hospital, the Edinburgh Hospital, the Irish Hospital, and the Welsh Hospital, 200 (I think) in the Princess Christian Hospital recently presented by Mr. Moseley to the Natal Government, and 25 in the Van Alen section of a field hospital. As a matter of fact each of these civilian-military hospitals had during the recent time of stress to temporarily increase its accommodation by 50 per cent., so that in one way and another the total reinforcements presented to the Royal Army Medical Corps authorities by voluntary effort amount to the large number of 3000 beds fully equipped and staffed. That Surgeon-Major Kilkelly possesses the qualities necessary for the head of one of these hospitals is proved by the great success which has attended his management of the Portland Hospital, and as that hospital was at work nearly three months before this, which was the second civilian hospital to arrive in South Africa, he has had more experience in the matter than any other officer. The Imperial Yeomanry Hospital, however, like the Portland Hospital, has been extremely fortunate in its commandant. Lieutenant-Colonel A. T. Sloggett is just the man for the job, the right man in the right place. No two officers could possibly have turned to better account the magnificent chances offered by the way in which the respective committees of these two institutions in London launched their undertakings. They sent out a splendid equipment and staff and having chosen their senior officers they trusted them and gave them a free hand and backed them up strongly on the few occasions when want of support might have perpetuated or might have bred difficulties. Their reward for having followed this sensible line of policy is found in the success which has resulted from it—a success which is marked enough to have caused a little quite excusable jealousy on the part of others who have not had equally good chances. I say "quite excusable" because it must be very annoying to those in authority in another hospital to hear the place for which they have laboured just as hard and

perhaps harder than their more fortunate professional brothers elsewhere perpetually being compared unfavourably by the patients and others with another institution. Indeed, there must be many officers in the Royal Army Medical Corps who envy Colonel Sloggett and Surgeon-Major Kilkelly their good luck in getting their present berths under a master who can be relied upon to grant every sensible request and to grant it at once and with evident satisfaction that it was made, and it must be a new and very pleasant experience to these two officers to find themselves working for such a master.

If, however, our Yeomanry Hospital has had the good fortune to be enabled to spread a comparatively rich table, many are the less fortunately-placed establishments which have benefited by the picking up of crumbs from it. At one time and another huge quantities of our stores, and of our equipment too, have gone astray. We hear that some packages have found their way back to England without redirection. The vast majority of those which we have lost have found in other camps out here a home which is rendered permanent by the generally understood, though unwritten, law of campaigning which ordains that any commandant has an indisputable right to stick to anything which falls into his hands. If only our packages chanced to fall into camps that wanted them more than we did I do not think anybody would grudge them, but a not inconsiderable quantity of our goods has been pilfered. When the entire packing-case fails to arrive it is seldom possible to ascertain what has become of it. The store-keeper who is new to his job or to the ways of the country worries a bit the first few times it happens, but after a short experience he thinks little and says less if out of a consignment of, say, six or eight dozen cases of wine or other attractive-looking goods only two or three are missing. Not seldom a whole truckful misses its right destination, but it finds another and with luck it may be brought back whole or in part. Occasionally a large portion of a train is consigned to one place but arrives at another. That happened to us once. As a general principle, however, the larger the mistake the more likely it is to be retrieved. It is the frequency of acts of really petty larceny which has most worried individuals and institutions. The quantity of "comforts" which have been stolen *en route* from friends at home must by this, the tenth month of the war, amount to something enormous. It is really no exaggeration to say that, after six months' experience, one is more surprised at receiving from England undamaged the box of cigarettes or other inviting-looking parcel which friends at home are so good in sending than one is to get the empty or half-empty case or the letter only which tells of its despatch. Several friends most kindly took to sending me a small parcel of tobacco each week. The result of the experiment was so disastrous that I had to write and advise them to stop it. Within the last three weeks three separate consignments of cigarettes, 25,000 in each, for distribution to the patients have been despatched to us from Cape Town. Only one of the three arrived at all and that had been opened, so that out of 75,000 cigarettes 24,000 reached the patients. The leakage is not by any means confined to the railway journey. I know of instances where the depredation was traced to the docks in Cape Town, and of one case in which it was clearly proved to have occurred before the parcel was put into a packing-case in England.

Surgically speaking there has been very little to do here of late, so little indeed that Mr. Raymond Johnson has gone home, for he felt that as things are now there is a greater call for him to be in his place at University College Hospital for the beginning of the winter session than for him to longer await here the often-expected downfall of Christian De Wet. The general impression is that as soon as that very able leader is wiped out Botha will quickly surrender, and that it is only the point of honour which makes the latter, as commander-in-chief, hold out so long as one of his subordinates keeps the field. Now that Colonel Sloggett has got back from Pretoria I am going to start at once on a short tour in Natal and unless any fresh rush of surgery should occur in the meantime I, too, hope to get home before Oct. 1st. At the present time there literally is not a case among our 519 patients which is not doing well or which needs more than a trivial operation, and even if there should by ill-fortune be a fresh and even a heavy access of surgical patients it is very unlikely that any of them would be brought down here. So very many hospitals are now established hundreds of miles nearer the front and all of them are, as we are, half empty, that there are vacant beds enough to easily accommodate 2000 or 3000 wounded without bringing any of them south of the Orange river, and now that the days of frontal attacks are over it is extremely improbable that anything approaching that number will have to be provided for. From the point of view of sickness, however, this indefinite prolongation of the war is becoming a serious matter. Apart from the comparatively light but still considerable weekly roll we are already within six short weeks of the end of September, when, as those with local experience warn us, there will be a recrudescence of enteric fever.

The Medical Inquiry Commission is due in Cape Town on August 21st, but whether they will first go to Natal, as is supposed, or spend a few days sifting matters in Cape Town before working up country to Pretoria by rail remains to be seen. It is said that they will cover all the ground and sail again within a month, but I do not think that it is possible. All signs of things as they were during the time of stress have disappeared, so that unless there is another terrible wave of enteric fever they will see nothing but apple-pie order throughout the hospitals. Everybody without exception, as far as my experience goes, is delighted at the addition to the Commission of those two representatives of administration and railway experience, for there is a very general consensus of opinion that the question of transport forms one of the chief roots of the difficulties under which the Royal Army Medical Corps laboured.

I said that there had not been much surgery to do in this hospital lately. As a matter of fact, from the middle of July to the middle of August there were 31 operations in the theatre, against 80 from the middle of June to the middle of July. These figures do not include the many small procedures carried out under nitrous oxide, such as opening abscesses, moving stiff joints, and extraction of teeth; for the latter alone there are two or three applicants every day. The nitrous oxide and the oxygen, of which we brought a large number of cylinders from England, have been most useful, and similarly we have had no cause to regret the bringing out of many other articles of equipment which, when they were proposed, evoked the adverse criticism of authority. One trembles to think what the hospital would have been like if it had not come equipped with its own laundry plant and steam steriliser at a cost of over £1200; nor would we for a good deal have lost the services of our masseur (he has recently got his Russian bath into working order, getting the steam from the laundry, and a most excellent and useful institution it has proved), or of our machine for making soda-water. It is much to have this manufacture under the supervision of a medical officer, for none of the soda-water procurable out here is free from the suspicion of being made from infected water. To turn out 40 dozen bottles, which is our maximum daily consumption, only takes the machine a few hours, so four months ago we made an offer in the right quarter to run the machine for the rest of the 24 hours for the benefit of the many other institutions which would be glad to have a reliable supply. The idea was voted a capital one by the head official concerned, and he said that he would provide the necessary syphons and make arrangements for the distribution. We at once made arrangements for the requisite increase in our supply of cylinders of CO_2, but we have heard nothing more about the matter. Presumably the head official had more important matters to occupy his time and attention than the substitution of a supply of soda water at cost price and reliable in both quantity and quality for the thoroughly unreliable article which some of the hospitals and messes are able to get if they can pay the enormous price which is asked for it. That, however, is one of the objections to the present organisation—there is so little delegation of power over details that an intended change has to be of supreme importance to stand any but a poor chance of being effected soon enough to be of use. Nor, again, could we possibly have properly nursed the 700 patients in one ward at the time of stress if we had bowed down to the official regulation which at that time limited the number of nursing sisters we had a right to bring to nine. Our committee in London braved the warnings, and the gibes too, of those whose business it was to know, but who evidently did not know, what infinite benefit is conferred upon the sick and at what infinitesimal inconvenience to the administrative department of a large hospital by the presence in it of a body of really competent nurses sufficiently large in numbers to actually nurse the grave cases. "They will only be tumbling over one another's

skirts and getting in one another's and everybody else's way," "They will only increase the trouble of administration and quarrel with the orderlies and grumble at the roughness of their food and accommodation," "Experience will soon teach you that a military hospital is a very different thing from a civil hospital, most of the patients are up and about and are only bored by the presence of a woman"—these are a few of the criticisms by which it was sought to throw cold water upon the pioneer effort of our committee to increase the numbers of the nursing sisters on the staff. 39 came instead of nine, but none of the prognostications ever came true; indeed, the entire male and female staff of the hospital has been a "happy family" ever since the start. Despite the criticisms and explanations which have raged around Mr. Treves's utterance with regard to women in South Africa I have not yet seen any statement in print which conveys any adequate idea of the magnitude and excellence of the work done by the nursing sisters in the war. It is only since March that their numbers have been brought up to anything like sufficiency, but they were here in time for the typhoid epidemic. It is true that ours were an altogether exceptionally well qualified lot of nurses, but they were such a success that we sent home for 10 more and these arrived just in time to save the original ones from breaking down in the weeks of stress from enteric fever. Nor have we even in lighter times found our numbers any too many to enable us to carry through the plan—on which I believe this was the earliest military hospital to work in South Africa—of having separate shifts of nurses for day and night work exactly as in a London hospital. Most fortunately not a single one of our nurses has contracted either enteric fever or scarlet fever, but surely the very fact that a considerable number of orderlies have got themselves infected looks as if the nursing sisters must have a much better appreciation of the value of cleanliness and the means to be adopted to prevent the spread of infection—or in other words that they must be much safer attendants upon the uninfected patients in the wards. I do not attempt to speak about field hospitals, for I have no experience of them, but I venture to express the hope that among the good things which will result from this war will be the establishment for all future time of a boon of inestimable value—that of having in every non-mobile military hospital a staff of really *well-qualified* (not merely "well-trained") nursing sisters in the proportion of somewhere between one to 10 and one to 20 of the patients. One nurse to every 10 hospital beds will be about the right proportion if in the future the principle of convalescent camps is confirmed, as I hope it will be. I think that this principle might be applied in times of peace as well as on active service and in framing the scheme a more convenient, if not a larger, application of the principle might be made than has been the case in this campaign. I believe that it would be found to work well if a convalescent camp was attached to each non-mobile military hospital.

Deelfontein.

MEDICAL NOTES FROM PRETORIA.

(FROM OUR TRAVELLING CORRESPONDENT.)

I arrived in Pretoria on the morning of August 11th, after a peaceful and uneventful journey from Bloemfontein. Pretoria is a much handsomer town than the capital of the Orange River Colony; its streets are wider, its shops are larger and more numerous, and its general aspect is more bustling and business-like. The surrounding hills protect the town from wind, and the climate on the whole is milder and more relaxing than that of Bloemfontein and its neighbourhood. The general health of the troops at Pretoria is excellent. There are very few surgical cases in the hospitals and of the medical cases only one-third are returned as being of enteric fever, and this disease has never assumed an epidemic form. The total number in hospital at the present moment is only a little over 1000, while there is accommodation for some 2400.

The largest and most prominent building in the town, the Palace of Justice, has been converted into a marvellously complete military hospital of some 500 (to be exact, 493) beds, known as the "Law Courts Hospital." This magnificent building occupies one side of the Market Square and is made up of a basement storey used as store-rooms and over this a large central hall lighted from the roof. This hall is surrounded by galleries from which and from the hall itself two storeys of rooms of varying sizes open off. The hall has been converted into a huge ward of 72 beds known as the "Victoria Ward." Behind this and opening out of it are three large wards of 20 beds each; while doors at the sides and front lead into smaller wards, an x-ray room, operating theatre, offices, &c. Two lavatories, a large bathroom, and two ablution rooms are also on the ground floor. Doors from the gallery encircling the hall lead into the first-floor wards which are 20 in number and contain beds varying from eight to 12, and to three lavatories, day-rooms, and a dining-room for sick officers. The wards are bright and cheery, and, with the exception of the large 20-bed wards on the ground floor, well ventilated. The inefficient ventilation of these wards, owing to their being shut in by the wings, and the absence of ablution rooms on the first floor, were the only serious defects which I noticed. Two wings running back on either side of the large ground-floor wards contain a number of small rooms used for the reception of special cases and they unfortunately shut out a good deal of air and light from the large wards. The whole building is lighted by electricity. In the open space behind the hospital proper is a large corrugated iron kitchen, with scullery, &c. The waste water from the kitchen runs into an open sluice fed by a spring. This is the universal system of disposal of waste water in Pretoria. The pail system is employed for the removal of excreta, which are treated with creolin or crude carbolic acid, mixed with ashes and removed four times daily by the municipality. The whole hospital is under the management and superintendence of Captain W. T. Mould, R.A.M.C., while the *personnel* of the Irish Hospital forms the nucleus of the medical staff and nursing staff. There are in all nine surgeons, 130 non-commissioned officers and men, and 22 nursing sisters. Sir William Thompson, chief surgeon, kindly showed me round the various wards, which were almost entirely occupied by medical cases, mild enteric fever, diarrhœa, and dysentery predominating. The few surgical cases were mostly penetrating wounds of the extremities and were devoid of points of special interest.

Other buildings in the town—No. 1 Model School and No. 2 Model School, the Girls' School, and Bourke Hospital—accommodate 400 patients. All are completely equipped and nothing is wanting to the comfort of the inmates. The large Artillery Barracks were found unsuitable for hospital requirements and the buildings are employed by the principal medical officer for the reception of Royal Army Medical Corps details. No. 2 General Hospital, which is a marquee hospital containing 600 beds, occupies an excellent site about two miles to the north-east of the town, with a special siding. It is of the usual type which has been so frequently described in these columns and is completely equipped in every way. Near it are the Langman Hospital and the Welsh Hospital, containing 150 beds each. These also are marquee hospitals. The former is ready and is receiving patients and the latter will open in a few days.

Surgeon-Major C. R. Kilkelly, the military commandant, and Mr. Hamilton, the treasurer of the new Yeomanry General Hospital, are already in Pretoria and are working with their accustomed energy. They have secured a charming site on a gentle slope about a mile from the Market Square, in the grounds of a large country house (Mr. Beckett's). The house itself has been placed at their disposal and will accommodate 60 patients; the remaining 440 will be in marquees pitched around the house. Mr. Langman Brown and 42 nurses are daily expected from Bloemfontein, and there is every reason to believe that the hospital will be quite ready in a few days.

A very important little adjunct to the military medical system in the shape of a small "rest hospital" of 12 beds at the railway-station has been established by Colonel W. L. Gubbins, R.A.M.C., the principal medical officer of Pretoria. Patients arriving unexpectedly or late at night are taken in here until the ambulances can be called up to transfer them to the hospitals. I am much indebted to Colonel Gubbins for his courtesy in explaining the general hospital system here and for showing me over the rest hospital.

Pretoria, August 12th.

THE MIDDLESEX HOSPITAL.—The treasurers have received a donation of 1000 guineas from Miss Wicksteed to endow a bed in perpetuity in the cancer wards for female patients.

THE PLAGUE IN GLASGOW.

Two more cases of plague have occurred since the publication of our last article, while a case which was then described as doubtful has declared itself to be the veritable malady. The total of cases therefore now reaches 16. A few such additional cases were to be expected when we recollect the history of the outbreak, an important feature in which was the fact that a full week elapsed between the sickening of the members of the Malloy family, presumably after attendance at the Bogan wake, and the recognition of their condition as infectious. During that interval free intercourse between the sick persons and their friends and sympathisers took place, and it was almost certain that the spread of the disease would not declare its limitations immediately. One exceedingly gratifying fact must be chronicled—the new cases can all be traced to the originally infected area, and no spread has taken place to other parts of the town, although suspected cases among the 114 now under observation have been brought from other quarters. A suspected case occurring outside the infected area turned out not to be plague.

Every day that the spread of the disease remains thus limited is of immense value to Glasgow, for if no more foci of the disease are established the city may look forward in a very short time to being rid of the invasion. And to the commerce and shipping of Glasgow this is a matter of enormous importance. For at foreign ports ships arriving from Glasgow are being, and will be, placed in quarantine for varying periods. The danger to shipping from the present outbreak of plague may be infinitesimal, but foreign ports know of the outbreak only and not of the circumstances. Also quarantine is quite recognised by Great Britain as an obsolete and ill-judged way of arresting the spread of disease, but it is the orthodox method in the opinion of many nations with whom we trade. The detention in some cases will probably amount to a fortnight, and what this means when an expensive modern steamer is in question would surprise those who have never thought of the matter. Exports are ceasing, and will continue to cease, from Glasgow until the port has a clean bill of health, so that the stimulus to the inhabitants to help in every way to get rid of the plague is a very acute one.

The Borough Commissioners of Partick, Govan, and Kirkintilloch all held meetings at the beginning of the week, when it became clear that those responsible for the public health of the people in the neighbourhood of Glasgow are not giving way in the least to plague scare. At the meeting of the Govan Commissioners, Commissioner Fortune, referring to the fact that plague had actually occurred in the burgh, said that "it was well once in a while to have a scare such as they had had because it made many of the people more cleanly." He deprecated an exaggeration of the seriousness of the outbreak and detailed the precautions taken by the authorities in behalf of the public health. Bailie Smith at the same meeting carried his courageous contempt for plague a little further. He seems to have said that "in the opinion of the man in the street the medical men seemed to have lost their heads over the plague business. He thought the doctors might be suiting the purpose of the community if they made less fuss about the disease. There could not be any possibility of the plague raging to the extent it did some 200 or 300 years ago, chiefly on account of the great strides in sanitation." Bailie Smith is correct in thinking that modern sanitation is a check on plague, but he is very incorrect in thinking that it is the proper course for medical men, out of deference to the trade of a place, to neglect any precaution whatever for the complete stamping out of a terrible disease. If Dr. Chalmers and his able coadjutors had "made less fuss about the plague"—in other words, had not strained every nerve to suppress it immediately—the consequences might, and probably would, have been appalling. Fortunately Dr. Barras, the medical officer of health of Govan, while no alarmist, has not followed the line recommended by Bailie Smith, but has kept himself prepared to deal with any possible outbreak drastically.

At a special meeting of the Partick Commissioners a communication was read from the Local Government Board of Scotland suggesting the application of the Infectious Diseases (Notification) Act to plague. Accordingly the following resolution was passed, viz.:—

> The Commissioners, as the local authority for the burgh under the Infectious Diseases (Notification) Act, 1889, declare, in terms of Section 7, Sub-section 6, of said Act, that emergency arises in consequence of the existence within the city of Glasgow of certain cases of plague, and therefore order that said Act shall in the district of the said local authority apply to "plague," and that for the period from the expiration of one week from the date of the advertisement to be made in terms of said Act till Sept. 3rd, 1901.

This resolution is published in the local papers and handbills have been issued throughout the burgh to the same effect. The Commissioners in remitting to the Sanitary and Sewers Committee power to take such measures as they might consider necessary specially authorised the temporary appointment of a medical man to inspect the whole burgh, beginning with the south side of it, and instructed the medical officer to get a supply of plague serum for inoculation where deemed advisable. The Convener and ex-Provost Caird were appointed along with the medical officer and sanitary inspector to arrange with the medical and sanitary officials of the city as to any measures that they might consider it advisable to adopt. Dr. J. Paterson, the medical officer of health of Partick, reported that he had engaged Dr. Kirkwood of Partick to make house-to-house visitations six days a week, and he had been at the work of inspection since Sept. 6th. The sanitary staff had also paid many visits to houses in the first ward with the object of enforcing cleanliness. An entire ward was in reserve at Knightswood Hospital for the treatment of any cases that might occur. On the whole the condition of the houses visited was good.

At Kirkintilloch, seven miles from Glasgow, at a monthly meeting of the burgh commissioners held on Monday last, Dr. W. Whitelaw submitted a brief report upon plague in which while admitting the bad pre-eminence of Kirkintilloch in cholera visitation he urged refrain from panic. And from other places in the neighbourhood the same story comes. The authorities, while neglecting no precautions, are resolved not to magnify the evils. This is the right spirit—it is the spirit which has made the Metropolitan Asylums Board prepare to receive plague patients in London, while at most of the large British ports the sanitary authorities are on the alert watching for the disease.

The rigorous cleansing of premises from which contacts have been removed, the emptying and limewashing of ashpits, the hosing of courts and the destruction of rats goes on apace in Glasgow. Many rats have been trapped in Rose-street and Thistle-street, Crown-street and Rutherglen-road during the past ten days, and after bacteriological examination were cremated. We are informed that none of the rats have so far been found to be infected. We publish additional notes from Dr. J. Brownlee and Dr. J. Campbell McClure as to the

CLINICAL ASPECTS OF CASES OF PLAGUE UNDER TREATMENT.

(3) William Malloy, aged three years, 57, Thistle-street, Glasgow, was admitted to the Belvidere Hospital on August 25th. This child, who is the son of Mrs. Malloy, whose case was given in full last week, is stated by his mother to have become ill on August 21st. His symptoms appear to have been very slight. They consisted solely of slight pain in the abdomen and general malaise. On admission the temperature was 99·6° F., the pulse was 106, and the respirations were 22. The child's expression was dull and the face was very pale. There was a markedly enlarged gland in the submental region of about the size of a large marble. This gland seemed to be hard and adherent and the skin above it was slightly red. This gland, the mother distinctly stated, was not present prior to this illness. The glands in the axillæ, neck, and groins were palpable but were not markedly enlarged. Those in the right groin were the most obvious. Nothing noteworthy was detected in either lungs, heart, liver, or spleen. On August 26th the temperature reached 100·6° but without any aggravation of the symptoms; since then the temperature had been normal and the child fairly well. The submental gland above noted had decreased steadily in size till at the end of 10 days it was barely perceptible. No bacteriological examination was made in this case.

(4) James Bogan, aged 60 years, 71, Rose-street, was admitted to hospital on August 28th, his case being certified as enteric fever. The patient's grandchild and wife died on August 7th and August 9th respectively from a disease certified as "zymotic enteritis," but their symptoms were high fever and delirium of a nature not usually associated

with that disease. The patient sickened on August 15th, on which date he was suddenly seized with shivering, nausea, and vomiting associated with severe headache and slight abdominal pain. The symptoms from their onset were so severe as to make him take to bed, where he remained till his removal to hospital. From August 25th he suffered from diarrhœa and for the 24 hours preceding admission he was delirious.

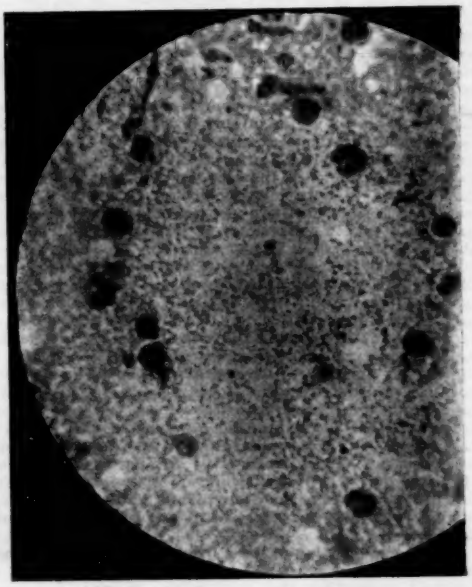
On admission the patient's face was seen to have the same dull, heavy, and yet anxious look as described in detailing last week the case of Patrick Malloy. The pupils were moderately dilated and the conjunctivæ were slightly injected. The tongue was coated with a thick greyish fur in the centre, while the edges were moist and clean. There was no congestion of the fauces. The skin presented the same mottling noted before in Patrick Malloy, with the difference that over the abdomen it was much more profuse. In the right groin was a very large tense red and œdematous swelling occupying the situation of the verticle group of glands (Fig. 1). This swelling was exquisitely tender and the tissues surrounding it were so infiltrated as to make the appreciation of individual glands by palpation impossible. The lymphatic glands above Poupart's ligament were also palpable and slightly tender, while the skin over the right iliac region, though not reddened, was distinctly œdematous. Elsewhere the lymphatic glands were not palpable. The temperature was 102·8° F., the pulse was soft and weak and numbered 72, while the respirations were at the rate of 24 per minute. The abdomen was slightly distended and rather tense. Nothing noteworthy was detected in the heart and lungs and the spleen and liver were not enlarged.

Course of disease.—The patient's condition has been precarious. Delirium has been almost continuous, although slight, and at no time violent. The pulse has been very feeble and its rate under 100. Hiccough was present from August 30th till Sept. 8th, though not in a distressing degree. It is of interest to note in this case that without any evidence of pulmonary lesion the respiration rate has varied between 24 and 30. Until the morning of Sept. 2nd the temperature ran a febrile course, varying between 100·6° and 103°. On that morning the patient had a distinct crisis and the temperature fell to 97·6° and there was improved tension in the patient's pulse and he expressed himself as feeling better. After admission the redness and œdema surrounding the swelling in the groin slowly spread until it extended downwards almost to the mid-thigh and backwards over the buttock. At the same time œdema without redness spread from the right iliac region until nearly the whole abdominal wall pitted readily on pressure. This was associated with a distinct increase in the abdominal distension. The inflammatory process reached its height on Sept. 1st and after that date there was a slow but distinct subsidence of the redness and œdema around the bubo. The œdema of the abdominal wall disappeared, but there appeared coincident with this considerable œdema of the left foot, with tendency to the formation of pressure sores. On Sept. 6th a secondary fever due to suppuration of the bubo commenced, and the temperature

FIG. 1.

Shows the patient on admission.

FIG. 2.



A pure cultur of bacillus pestis.

rose gradually until it has now (Sept. 12th) reached 101°. The patient was at the date of writing extremely feeble.

A pure culture of bacillus pestis (Fig. 2) was obtained from puncture of the bubo on the night of admission.

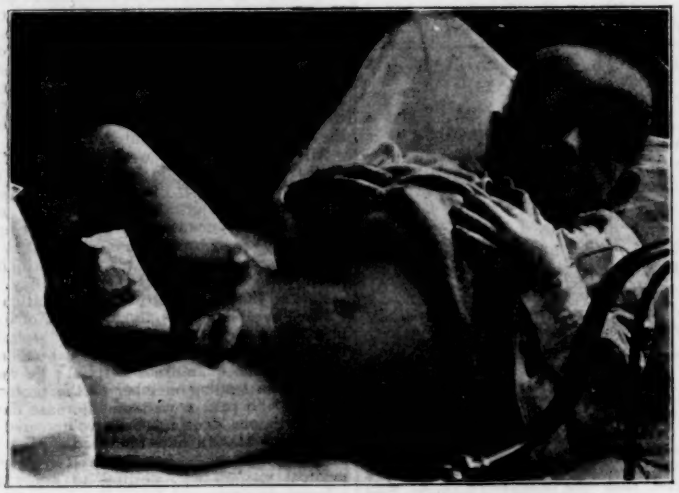
(5) Thomas Horn, aged 14 years, 6, South Coburg-street, was admitted to hospital on August 29th, his case being certified as "enteric fever (?)." The patient was at the house of Mrs. Malloy on either August 20th or 21st. He sickened on the 23rd. The incubation period in this case is therefore two or three days. On the 23rd the patient was seized with headache, retching, and pain in the back and right axilla. He was fevered, restless, and delirious at nights after the onset of illness. The pain in the right axilla rapidly became worse and was followed by pain in the left side of the neck and in the right groin.

On admission the patient's face was flushed and the expression was dull and heavy. He had the same apprehensive expression described in previous reports. The pupils were dilated and the conjunctivæ were fairly clear. The lips were dry and there was well-defined circum-oral pallor. The tongue was coated in the centre with a greyish white fur, but was clean and moist at the tip and edges. The skin was hot and dry; it presented a faint mottling which was most marked on the back, flanks, and buttocks. As the patient lay in the dorsal decubitus the right thigh was slightly abducted and the leg was semi-flexed. There was a general enlargement of the glands in the groins, the axillæ, and the neck. The glands in the right axilla and the right groin were distinctly the largest and exceedingly tender (Fig. 3). No complaint of pain was made on palpation of the glands of the left groin, the left axilla, or the neck. The skin over the right axilla and the right groin was slightly reddened, but was not œdematous. The temperature was 104·6° F., the pulse was 140, and the respirations were 26. The pulse was easily compressible, but quite regular. The respirations were easy. Examination of the lungs revealed nothing except a few sub-crepitant râles in the left baso-lateral region. On auscultation over the cardiac area a faint systolic murmur was heard both at the apex and in the pulmonic region. The abdomen was slightly tympanitic

FIG. 3.

Shows the patient on admission.

FIG. 4.



Shows another patient on admission whose clinical history is not recorded in this article

to percussion, especially in the right iliac region. The spleen was enlarged both in its longitudinal and transverse diameters.

Course of disease.—Until Sept. 2nd the general condition remained the same. There was no visible increase in the size of the enlarged glands. He was very restless at nights, having delirium with delusions. Fever was high, the temperature ranging from 103° to 105°. The pulse was rapid and feeble. Considering the stress and duration of the fever there was a notable absence of some of the commoner symptoms of high fever—viz., subsultus tendinum and dryness of the mouth and tongue. Headache was constantly present. On August 31st a marked injection of the right eye was observed with slight prominence of the eyeball. On Sept. 2nd a consignment of Yersin's anti-plague serum was received. It was decided after consultation that this patient was a suitable subject for serum treatment. Accordingly at 12 midnight an intravenous injection of 15 cubic centimetres and at the same time a subcutaneous injection of 25 cubic centimetres of the serum were made. The patient slept well after the injections and perspired freely for the first time since admission. Next day brought no remission of the temperature, but the buboes in the right groin, which had been extremely tender on the previous day, could now be touched without the patient experiencing more than a slight sense of pain. A like lessening in the tenderness of the axillary bubo was also quite manifest. A fall of temperature amounting to 4° occurred on the night of Sept. 3rd, and since then the improvement has been maintained. Three days ago (Sept. 9th) there was occurrence of pain in the glands of the right groin associated with a temperature oscillating between normal in the morning and 101° at night, probably due to suppuration of the bubo.

A pure culture of the bacillus pestis was obtained after puncture of the axillary bubo on the day after admission.

A SUMMARY OF THE EVENTS IN THE RECENT OUTBREAK OF PLAGUE IN SYDNEY.

(FROM A SPECIAL CORRESPONDENT.)

THE population of the metropolitan combined sanitary districts of Sydney is 456,000, all being whites except a small colony of Chinese who number less than 4000. Cases and deaths occurred as shown in the table below; included among them are 10 Chinese, all males, of whom eight died. The first case appeared during the week ending Jan. 27th, and up to July 28th there had been 302 cases and 102 deaths.

Week ending	Number of cases.	Result.	Week ending	Number of cases.	Result.
Jan. 27th.	1	Recovered.	May 5th.	38	10 deaths.
Feb. 3rd.	—	—	,, 12th.	23	10 ,,
,, 10th.	—	—	,, 19th.	24	10 ,,
,, 17th.	—	—	,, 26th.	7	6 ,,
,, 24th.	2	1 death.	June 2nd.	17	3 ,,
March 3rd.	2	1 ,,	,, 9th.	4	3 ,,
,, 10th.	5	3 deaths.	,, 16th.	10	3 ,,
,, 17th.	12	5 ,,	,, 23rd.	6	—
,, 24th.	10	3 ,,	,, 30th.	12	3 deaths.
,, 31st.	23	6 ,,	July 7th.	1	—
April 7th.	29	9 ,,	,, 14th.	3	—
,, 14th.	29	12 ,,	,, 21st.	2	—
,, 21st.	16	8 ,,	,, 28th.	0	1 death.
,, 28th.	26	7 ,,			

Before the plague came the provisions of the Venice Convention were applied to vessels arriving from plague-infected ports, efforts were made to kill the rats on them, and notification of all cases of plague was made compulsory under the Public Health Act as soon as the presence of the disease in New Caledonia became known. On the appearance of the first case the Registrar-General was requested to communicate to the department every information of death received by him after Jan. 1st, 1900, in which the cause was ascribed to blood-poisoning, septicæmia, acute abscess, septic intoxication, &c., with a view to investigation by the medical staff. It was publicly requested that all cases of illness of doubtful character should be reported to the department. This request was also specially addressed to the members of the medical profession by letter. Suspicious or doubtful cases thus reported were examined and diagnosed by a staff medical officer. On the appearance of the second case the coroners were desired to report all uncertified cases of death in which there was suspicion of plague, in order that the examination of the bodies might be supervised and to secure safe burial if plague were found to have been the cause of death.

Facilities for examining cases bacteriologically already existed in the excellent laboratories possessed by the department and under direction of a highly-trained microbiologist. A supply of plague prophylactic (Haffkine) had been procured long before and was in readiness. At first it was used for inoculating the staff and contacts only. A further supply was received during the second week of the outbreak and was used on contacts and on persons inhabiting parts of the city which appeared to be specially dangerous; this supply was continuously maintained by receipt of fresh consignments from India. Posters were exhibited in the streets in which brief information concerning plague and instructions to householders were given, and pamphlets to a similar effect were sent by post to every householder; the posters were also printed in Chinese, and exhibited in the small Chinese quarters which exist in Sydney.

Parts of the city from which numerous cases of plague had been removed were regarded as infected areas. They were dealt with under the quarantine law, surrounded by a guard, and then large numbers of men controlled by the Department of Public Works were turned into them who thoroughly cleansed them. A staff was organised for the destruction of rats. In addition, a capitation fee of sixpence for every rat was paid through the agency of the staff last mentioned and also through the agency of the various municipal councils controlling the districts into which Sydney is subdivided. The sewers were from time to time fumigated with burning sulphur by the staff of the engineer for water-supply and sewerage. This had the effect of killing some rats and of driving large numbers to the sewer mouth where they were drowned or destroyed. Another staff was organised which had for its duty to fumigate regularly with burning sulphur the ferry boats which ply on the harbour so as to destroy the rats. This duty was entrusted to the collector of customs. It was ordered that no vessel trading between Sydney, which was the only infected place, and other ports of New South Wales should be allowed to communicate with the shore unless it could produce a certificate that before leaving Sydney it had been fumigated and the rats had been destroyed. This duty was entrusted to a branch of the last-named staff. Vessels of all descriptions were forbidden to lie at any public wharf except under regulations calculated to prevent the landing of rats from them. They were to be kept four feet off the wharf by fenders—the fenders and gangways in use to be kept freshly tarred, springs and hawsers to be tarred, all openings in the vessel on the wharf side to be closed except when in actual use, all openings to be closed at night and the side to be brightly lighted, &c.

All local authorities were reminded of their powers and duties under the Public Health Act and the Municipalities Act and were exhorted to use great exertions to get rid of all accumulations of filth and of nuisances in general. Local authorities in country districts in communication with Sydney by sea or by rail were requested to secure the refusal of some cottage suitably placed in which a plague patient might be lodged if imported from Sydney.

Part of the maritime quarantine station was equipped and utilised as a plague hospital. A staff of experienced trained nurses was drawn from a general hospital under control of the department. A staff medical officer was placed in charge of the quarantine hospital; he was assisted by the advice of a leading member of the profession practising in Sydney who paid a visit on alternate days. Clergymen of three religious denomipations volunteered for service at the quarantine station and officiated during its occupancy for plague purposes. They, as well as medical officers and medical visitors who desired to study the disease, were allowed to enter and leave the hospital enclosure on first

changing their clothes and on bathing before leaving if they had been inoculated.

Buildings at the maritime quarantine station standing outside the hospital enclosure, which are generally employed for housing healthy persons landed from infected vessels, were used as an isolation camp for contacts.

Communication with the quarantine station being by sea a service of steam-vessels was organised, by means of which communication could be had immediately at any time that a case was reported for removal. These vessels lay at a central depôt within the city, which was placed in quarantine. A special ambulance service was equipped for the purpose of removing cases of plague; it was lodged at the central depôt above-mentioned. A disinfecting staff was organised and lodged at the same central depôt. This was placed under control of the medical officer of health of the metropolitan combined sanitary districts.

All cases of plague or suspected plague were notified to the department direct; they were then visited by a staff medical officer. As soon as the staff medical officer had made up his mind that the case was plague he administered subcutaneously 40 cubic centimetres of Yersin-Roux serum (as soon as this became available on May 12th), communicated with the nearest police-station, forthwith placed the house and all persons in it in strict quarantine under a police guard, and reported.

When a staff medical officer's report was received (by telephone or otherwise) at the department, the ambulance staff was instructed to fetch the patient and, in separate vehicles, the other members of the household. A trained nurse accompanied the patient and attended to his needs during the journey.

On arrival at the maritime quarantine station protective inoculation was offered to the contacts; it was rarely accepted. On arrival contacts were deprived of their own clothes and were given clean clothes; their own clothes were restored to them after washing or disinfection in a steam disinfector. Contacts, whether inoculated or not, were detained for five complete days and were then dismissed. Patients were discharged from hospital (*a*) if they had had a normal temperature for 10 days, (*b*) if they had no discharging sore, and (*c*) if they were, generally speaking, strong enough.

The bodies of persons (*a*) who were too ill on discovery for removal, (*b*) who were found already dead, or (*c*) who after investigation on report of coroners were found to have died from plague were dealt with as follows. The body was completely enveloped in a sheet soaked in sublimate solution and placed in a light coffin having watertight joints at the bottom. The coffin was screwed down; it was enveloped in coarse sheeting soaked in sublimate solution; it was then safely transported by the undertaker to the depôt already mentioned and thence to the maritime quarantine station, where it was buried without further precaution in a sandy soil on a slope falling towards cliffs above the Pacific. The bodies of persons who died at the quarantine hospital were coffined after a similar fashion in the hospital enclosure by the male nurses, who also carried them to the gate. They were then taken in charge by appointed persons who transferred them to the place of burial mentioned above.

After the house from which the patient had been removed was evacuated it was locked and remained in charge of the police who prevented general access to it. As soon as possible the disinfecting staff took possession of it. Usual methods of disinfection were used: sublimate solution was applied with Geneste-Hirscher sprays inside, solutions of 5 per cent. sulphuric acid being used for yards and basements. Clothing, bedding, and soft goods generally were removed in canvas bags to the steam disinfector. The routine of disinfection varied slightly according to circumstances in individual cases; the whole premises were always thoroughly cleansed, but often only the room occupied by the patient was actually disinfected. Articles removed for disinfection having been replaced, the contacts resumed occupation at the beginning of the sixth day from their removal.

August 8th.

ALUM IN BAKING POWDER.—At the Bristol police-court on Sept. 5th a grocer was summoned for selling baking powder containing 52 per cent. of alum. He was fined 40*s.* and costs and informed that a second offence would result in imprisonment.

POST-GRADUATE INSTRUCTION.

AT the beginning of the new medical session, which is now within a measurable distance of us, many qualified men will like to know the opportunities which are offered them in London for keeping up to date in their clinical work. The union of nine of the Metropolitan Schools of Medicine offers the best of these opportunities. A ticket for three months or six months can be obtained which entitles its holder to attend the clinical instruction, the operations, and the post-mortem examinations at each of the following hospitals, viz., Charing-cross, Guy's, King's College, Middlesex, St. George's, St. Mary's, St. Thomas's, University College, and Westminster. It will be seen at once what a wealth of material is open to those who desire to see as many cases as possible in a short period, and practitioners will be difficult to please if they do not find enough cases of real interest to study. If the scheme were more widely known there would be fewer who consider that they must go to Paris, Berlin, or Vienna to obtain clinical instruction. Particulars may be obtained on application to the honorary secretary, Metropolitan Schools of Medicine, west wing, Examination Hall, Victoria-embankment, London, W.C., between the hours of 12.30 and 3 P.M. daily, except on Saturdays.

Medical Graduates' College and Polyclinic, 22, Chenies-street, Gower-street, W.C.—This institution was established in 1898. Its principal object is to organise and to develop post-graduation study in the metropolis. The enormous field for clinical study which exists in London has failed to attract medical graduates in any considerable number largely because the existing facilities are but imperfectly known and the clinical teaching is not definitely organised to meet the wants of practitioners. The establishment of a central office where precise information may be obtained will, it is hoped by those interested in the institution, be of some influence in placing London in the position it ought to occupy as the most important centre for post-graduation study. In addition to an endeavour to secure coöperation among existing institutions the new College provides practical instruction under its own roof in all the special departments of professional work. It is well equipped with consulting-rooms, class-rooms, laboratory, lantern-room, dark-room, &c. There is also a well-furnished reading-room and library. In the Polyclinic consultations are conducted every afternoon at 4 o'clock by well-known physicians and surgeons. Patients whose circumstances warrant it may be sent by any medical practitioner and the opinion of the consultant is communicated not to the patient but to his medical adviser. Records of the cases are made and the valuable clinical material thus collected is to be published in the College journal. The annual subscription is fixed at present at one guinea. This secures the use of the library, reading-room, and museum with the right to attend the afternoon consultations. There are also at intervals special clinical lectures which are open to all annual subscribers. Medical visitors to London are invited to inspect the College, and further information may be obtained by application to the medical superintendent. The President of the College is Sir William H. Broadbent, Bart.

Charing Cross Hospital.—Special series of clinical lectures and practical demonstrations, exclusively arranged for the convenience of practitioners and post-graduate students, are given at the hospital throughout the year. The lectures for the year are arranged in three courses, each course consisting of 10 meetings and lasting 10 weeks. Two of these courses are held during the winter and one during the summer. The class meets on each Thursday in the board-room of the hospital and proceeds thence to the wards or to the department in which the demonstration may be held. The fee at present charged for each course of 10 lectures is one guinea. The first of the two winter courses for the ensuing academical year will commence on Oct. 11th next and will be conducted by the following members of the medical and surgical staff: Dr. T. H. Green, Dr. J. M. Bruce, Dr. F. Willcocks, Dr. H. M. Murray, Dr. J. Galloway, Dr. T. W. Eden, and Mr. S. Boyd, Mr. H. F. Waterhouse, Mr. F. C. Wallis, and Mr. C. Gibbs. Practitioners wishing to join the class can obtain any further information as to the

dates and the subjects by communicating with the honorary secretary (Dr. F. Willcocks) at the hospital.

West London Hospital.—This hospital was the first, and still is the only, general hospital in London to organise a systematic scheme for post-graduate teaching and to devote the clinical material in its wards and in its out-patient department to the instruction of qualified men. This scheme was started in 1895 and three years later its basis was enlarged by the provision of accommodation in the shape of lecture-, reading-, and writing-rooms for the post-graduates. For the proper organisation of post-graduate teaching a general hospital is essential, and it is absolutely necessary that the practice of such hospital should be exclusively reserved for qualified medical men. The proof of this statement is to be found in the success which has attended this college. The large number of post-graduates who have been enrolled since its commencement (over 300) at first strained the accommodation resources of the hospital, especially in the out-patient department, but a much-needed enlargement of this department carried out by the committee last year now affords ample space for a large class of post-graduates. The scheme of study includes the following: 1. Instruction is given daily in the medical and surgical out-patient rooms. 2. Special demonstrations are given in the medical and surgical wards on fixed days in each week. 3. Practical instruction is given in the special departments for diseases of the eye, throat, nose and ear, and of women, and clinical assistants are appointed in connexion therewith. 4. Instruction is given in the post-mortem room and in the clinical investigation laboratory. 5. Every facility is afforded to the post-graduates for seeing and following the operations performed in the operating theatre, over 1000 operations being performed each year, and they are encouraged to render assistance thereat. 6. Courses of practical lectures are held three or four times in the year, two lectures being given in each week. A certificate, signed by the staff, is awarded after three months' attendance. The fees for hospital practice, including all lectures, are £3 3*s.* for three months, or £5 5*s.* for one year. Full information can be obtained on application to the Dean, Mr. L. A. Bidwell, at the hospital.

West-End Hospital for Diseases of the Nervous System.—Clinical demonstrations on cases of diseases of the nervous system are held each Tuesday afternoon at 4 o'clock throughout the winter for medical practitioners. Medical men are admitted on presentation of their visiting cards, but the fee for a course of three months is one guinea. The courses are also sometimes held during the spring and autumn vacations for medical men visiting the metropolis. The programme of subjects held during the winter courses is so arranged as to cover the main subjects included in neurology. The subjects are always practical and cases are always shown. A synopsis of each demonstration is sent by post beforehand to those who join for the course. As this course caters solely for practitioners it does not clash with that given at the National Hospital for the Paralysed and Epileptic which is for students also. Further information may be obtained from the honorary secretary, Post-Graduation Course, at the hospital, 73, Welbeck-street, W.

*** For Post-graduate instruction abroad see the Students' Number of THE LANCET for Sept. 2nd, 1899, page 692.

THE REPORT OF THE SANITARY COMMISSIONER WITH THE GOVERNMENT OF INDIA FOR 1898.

FIRST NOTICE.

THIS report, with its appendices and returns, forms a weighty official document in a double sense—that is, not only in the matter of avoirdupois, but in the amount and value of the information which it contains. We do not think that these reports are so well known as they should be, for they contain a variety of information not easily to be obtained elsewhere. A perusal of the list of books and papers referred to by the compilers of this volume will show the labour involved in drawing up these reports. We may enumerate some of the subjects discussed, and as our observations must be very brief we strongly recommend our readers to study the report for themselves.

In addition to the sections devoted to the diseases affecting the European and native armies of India, the jail and general population, we have one upon enteric fever in which the subject is very elaborately and carefully treated in connexion with all the more recent views put forward in contemporary medical literature—in Europe and America. There is also a contribution on the detection of the bacillus typhi abdominalis in water and other substances by Mr. H. Hankin, Fellow of St. John's College, Cambridge, the chemical examiner and bacteriologist to the North-West Provinces and Oudh and to the Central Provinces. A very interesting reference is made to some points in connexion with plague and a brief summary of the report of the German Plague Commission is given; while among other contents of the report we may mention some valuable observations on the sewage problem and the different methods adopted for the disposal of excreta in India; a *résumé* of Professor's Sticker's paper on Leprosy as the result of his observations and experience whilst serving in India as a member of the German Plague Commission; and a capital, as well as very readable, report by Dr. Alexander Crombie of the recent Congress on Tuberculosis at Berlin (at which he was present as a delegate from the Indian Government), supplemented by observations having special reference to the prevalence and prevention of that disease in India.

The health of the European army in India, the average strength of which in 1898 was 67,741, was better as measured by the admissions, constantly sick, and death rates, but the total loss from deaths and invaliding together was higher than in the previous year. Ague and venereal disease, although less in 1898 than in the previous year, made up more than half the total admission-rate from all causes. But the diseases which caused this admission rate were not by any means those which gave rise to the mortality in the British army serving in India. Enteric fever caused more than half the total death-rate. The mortality from this fever, abscess of the liver, and heatstroke combined made up 65 per cent. of the total deaths for the year. As far as northern India is concerned the health statistics were no doubt unfavourably affected by the return of soldiers more or less broken down in health from frontier field service. We notice that the highest death-rate occurred in the 2nd battalion of the Yorkshire regiment at Peshawar and that no less than 52·9 of it was attributable to enteric fever. A large part of the Sanitary Commissioner's report is devoted to the consideration of this fever and the subject is very thoroughly discussed—indeed, we do not know any other published reports in which the views of Continental, British, and American authorities in regard to its origin, causes, modes of spread, and etiology are so amply set forth. We wish we could add that the result of all the labour bestowed upon the subject was more encouraging than it is. Enteric fever is the most fatal of all the diseases to which the European army in India is subject and, judging by statistics, it seems to be increasingly so. Not so very long ago it was comprehensively regarded and relegated to one cause, that of a water-borne disease; but this exclusive view is no longer held to be tenable. Its causation is now attributed to the presence of the enteric fever bacillus of Eberth and Gaffky and, as a consequence, the fever is intimately associated with the life-history of this pathogenetic germ and the methods by which it effects an entrance into the human body. It is confessedly somewhat bewildering to those who are seeking how to formulate some practical line of action in regard to the prevention of enteric fever to read all the various theories and hypotheses that have been, and are still being, put forward. A much more comprehensive view is now taken as to what is and what is not enteric fever. Not only are cases nowadays included under that term which the late Sir William Jenner, for example, would probably not have recognised as belonging to it, such as those of enteric fever without intestinal lesions, but the latest researches open out fresh paths for investigation. The great body of opinion, and the results of bacteriological researches, are in favour of the view that the enteric fever of India is the same as that of Europe, although cases may occur in both countries caused by other and related bacilli. Assuming that the bacillus is the veritable cause of enteric fever, the facts that it can be so frequently detected in the urine and that its presence is often discoverable in the gall-bladder and various organs and tissues long after a patient has recovered from an attack of enteric fever, tend to show how much more complex and difficult is the problem

of preventing the spread of the disease than it was when the intestinal discharges were believed to be the sole or main vehicle for dissemination of the virus. The enteric fever age belongs to that period of life of which short service armies are composed, and the predisposition to be attacked by it in tropical and sub-tropical climates is in inverse proportion to the length of service in such climates—in other words, the shorter the residence the greater the liability to attack. This may be now regarded as a fact established by Indian statistics. A good deal has been said of late about the prevalence of enteric fever among the native population in India. If such were the case we should not, of course, have far to go to seek for a widespread cause of its prevalence among British troops serving in that country; but the facts, so far as these are known, all point the other way—namely, that the natives enjoy a comparative immunity from enteric fever. It is commonly alleged that the natives suffer from that disease in childhood—hence their subsequent immunity; but no evidence has been brought forward in support of that view, and it is notorious that the amount of enteric fever among the native army and jail population is quite insignificant as compared with what it is among Europeans quartered in India. Put shortly, the disease from which the native soldier dies is pneumonia and respiratory disease during the cold season; that from which the British soldier dies is enteric fever contracted in the hot season. It is noteworthy, too, that the class of native troops most liable to be affected by enteric fever are those whose diet and habits most nearly resemble our own—the Goorkhas, for example. If we might hazard a conjecture it would be that those who are not meat-eaters and spirit-drinkers in these climates are less liable to attack, and that their fæcal discharges are of quite a non-infective character as compared with those who consume meat and alcohol. Be this as it may, however, the loss of young manhood in India and the drain on this country from this disease are appalling, and no amount of trouble and expense can be considered excessive when employed in searching out and preventing its causes.

The history of plague in India during 1898 shows that, as far as the British troops were concerned, the chances of their contracting the disease by infection were very small, notwithstanding the fact that numbers of them were employed on plague duty. In case of cholera the movement of British troops in seven instances during 1898 was resorted to with success; and similarly in the case of plague the evacuation of an infected site or of the lines occupied by the native followers of a corps was found to be the most effectual plan of procedure. The best methods by which we can combat plague comprise: evacuation of the site, measures of disinfection, and anti-plague inoculation on the same principle as we vaccinate against small-pox; and the most practical guide that we have seen is a little pamphlet on bubonic plague by Mr. Hankin, published at the Pioneer Press, Allahabad, in 1899. As regards the way to proceed in the case of a village or small community a recent report by the Punjab Government may be consulted. In this report the rôle played by rats and the reasons for an immediate and wholesale evacuation of a plague-infected locality are set forth in an interesting and instructive way. The report states that the advantages of evacuation and thorough disinfection of a whole village site have been so accepted as fully proved that little argument has been used regarding them. A comparison of the ultimate results in a number of cases where immediate evacuation was not insisted on with those of later villages where no delay was allowed to occur will show clearly the necessity of having all villages camped out in the open air at the earliest possible moment. The argument is this. Plague shows no tendency to spread from house to house unless it is carried by human beings or animals. Rats take the disease, and it is admitted that after being infected they have no tendency to leave their homes unless they are disturbed, and that in 10 days all that live in the infected houses should have died. If, however, they are disturbed by the roofs being at once taken off infected houses, floors being dug up, and everything being flooded with antiseptics, they leave the infected houses and carry the infection to other houses. In front, therefore, of the line of disinfection through a village there is an advancing wave of infection carried by the rats, and when the disinfection reaches the last house in the village the remaining rats must either double back into the houses already disinfected, thus re-infecting them, or they must leave the village and carry the infection to some other village, and either result is clearly one to be avoided. Given the premisses the conclusion and the rule would therefore be sound.

THE OUTBREAK OF TYPHOID FEVER IN BELFAST.

AT the present time the citizens of Belfast are being treated to an interesting discussion as to the cause of the typhoid fever in the city. In the middle of July the executive sanitary officer and the city surveyor of Belfast reported to a joint meeting of the improvement and public health committees of the corporation as to how the health of the city could be improved with special reference to typhoid fever, and they made a number of suggestions, as reported in THE LANCET of July 21st (p. 224). The executive sanitary officer reported that there would be no protection against epidemics of typhoid fever until the Water Commissioners carried out the powers which they obtained from Parliament last year, when in referring to their catchment the chief engineer of that trust stated that "a condition of things like that on the catchment is a standing menace to the health and life of the people in the town where the water is consumed." In reply to this report the chief engineer of the Water Commissioners supplied his board with a counter report which was presented at their meeting on August 30th. He said that the conclusion that the recent cases of typhoid fever in Belfast found their origin in the Stoneyford catchment was unsupported by any real evidence. As against such a view he brought forward the long storage and subsidence of the water; very careful filtration; further storage in the service reservoir; turning the water to waste when any doubt existed as to its suitability for use; and the fact that the disease did not show itself fairly distributed over the whole district receiving a supply from Stoneyford, but in a particular portion. He then twitted the corporation officials with the fact that while they admitted serious defects in the sanitary condition of Belfast and made a number of general recommendations in connexion with them, they utterly failed to draw any conclusion as to the relationship between the sanitary conditions and the prevalent disease. He traced the origin of the epidemic to bad drains, stinking privies and ashpits, sewer gas, and unhealthy sites in Belfast. He pointed out that there were thousands of spots in Belfast soaking with organic pollution, teeming with germ life, and ready when conditions were favourable to seek out new victims. He pointed out how disease-germs, which die in water in a few weeks, live and multiply at an enormous rate in soil when it is charged with organic filth. He showed (by quoting statistics, giving some returns of drain-testers employed by the public health committee) the deplorable condition of drain-jointing in Belfast. One tester found, out of 819 houses in which typhoid fever had occurred, some 388, or 44 per cent., with defective drains. In a further batch of 137 houses the drains in over 78 per cent. were wrong; and another tester stated that out of 731 houses in which typhoid fever had occurred 389 houses, or 53 per cent., had defective drains. On the question of things sanitary in Belfast the engineer of the Water Board referred to a paragraph quoted in Question 4040, noted in the Belfast Bill of 1896, as follows:—"No language could be too strong to express public disapproval of the practice of wilfully constructing improper sewers or drains and anyone even moderately acquainted with the character of the Belfast buildings must be alive to the fact that this almost criminal negligence is more widespread than they would care to acknowledge." The engineer of the Water Board attacked the whole system of the Belfast main drainage, pointing out that the sewers were too small for their work and that the assumption that the main drainage system had freed the brooks and streams from sewage was incorrect. He showed that the Water Commissioners were, and had been, pushing on as fast as possible their plans to acquire the catchment areas. Taking the table of death-rates from typhoid fever in Belfast for the period 1890–1899, excluding the two epidemic years, he showed that the average or normal death-rate from typhoid fever was 54 per 1000 persons per annum, while in the 33 great towns in England for the period 1888–1897 the rate was 19 per 1000

In other words, independently of epidemics, the annual average or normal death-rate from typhoid fever in Belfast was almost three times the rate in the 33 great towns.[1] He pointed out how the corporate officials had been absolutely silent on this point—viz., that typhoid fever was really endemic in Belfast, the inference being that sanitary defects, not bad water, must be the cause of this, precisely an analogous condition to Dublin where, though the water-supply was admittedly good, typhoid fever was endemic. The engineer of the Water Board claimed to have shown that the visitation of typhoid fever could not be fairly attributed to the Stoneyford water-supply, and he held that other causes and insanitary conditions (which he pointed out) were sufficient to account for all the disease that had occurred, causes and conditions to which he accused the officials of the corporation of having shut their eyes in their report. He quoted Dr. Frankland (in support of the Belfast Water Bill of 1899), who, while supporting the proposals to buy up the water-works catchments, states: "I do not think any case has been made out against the water as having produced the epidemics (of typhoid fever) which Belfast has been subject to from time to time." Finally, the engineer of the Water Commissioners expressed his surprise that, in the present sanitary deadlock now existing in Belfast the public health committee of the corporation did not have an exhaustive examination of the city made by an eminent public expert in public health, such as Dr. A. Hill of Birmingham or Sir Henry Littlejohn of Edinburgh. The public have now heard both sides of the case, that of the public health committee who say the water-supply was the cause of the epidemic, and that of the Water Commissioners who deny this altogether, but blame the bad sanitary state of the city as being the *fons et origo mali*. Meantime, while this wrangling goes on between the City Corporation of Belfast and the Water Board, 62 cases of typhoid fever were notified for the week ending August 26th. No attempt has so far been made to meet the damaging attack of the official of the Water Commissioners. At the monthly meeting of the city council held on Sept. 1st it came out that during the period between July 22nd and August 18th 209 cases of typhoid fever had been notified, 78 of simple continued fever, 36 of scarlet fever, 26 of erysipelas, eight of diphtheria, four of puerperal fever, two of croup, and one of small-pox. The number of cases of typhoid fever, as well as the deaths therefrom are slightly more numerous than in the preceding four weeks. It was extremely unfortunate that just when the council were beginning to discuss this most important question of the typhoid fever outbreak the meeting became so small that the necessary quorum was not present and the consideration of the matter had to be adjourned.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 7042 births and 4824 deaths were registered during the week ending Sept. 1st. The annual rate of mortality in these towns, which had been 20·3, 19·5, and 19·8 per 1000 in the three preceding weeks, rose again during the week under notice to 21·7. In London the rate was 20·2 per 1000, while it averaged 22·6 in the 32 provincial towns. The lowest death-rates in these towns were 11·9 in Halifax, 12·3 in Croydon, 14·1 in Bradford, and 14·2 in Cardiff; the highest rates were 27·9 in Birmingham, 30·6 in Hull, 33·3 in Preston, and 33·6 in Sheffield. The 4824 deaths in these towns included 1422 which were referred to the principal zymotic diseases, against 1061 and 1180 in the two preceding weeks; of these 1156 resulted from diarrhœa, 97 from whooping-cough, 49 from diphtheria, 48 from "fever" (principally enteric), 45 from measles, 24 from scarlet fever and three from small-pox. The lowest death-rates from these diseases were recorded in Halifax, Bradford, Newcastle-upon-Tyne, and Birkenhead; and the highest rates in Bolton, Sheffield, Preston, and Hull. The greatest mortality from measles occurred in West Ham and Swansea; from scarlet fever in Burnley; from whooping-cough in Cardiff, Brighton, and Gateshead; from "fever" in Portsmouth; and from diarrhœa in Birmingham, Bolton, Preston, and Hull. The 49 deaths from diphtheria included 19 in London, 10 in Sheffield, six in Leicester, and three in Leeds. Three cases of small-pox were registered in Liverpool, but not one in any other of the 33 towns. There were two cases of small-pox under treatment in the Metropolitan Asylums Hospitals on Saturday, Sept. 1st, one fresh case having been admitted during the week. The number of scarlet fever patients in the Metropolitan Asylums Hospitals and the London Fever Hospital at the end of the week was 1702, against numbers decreasing from 1838 to 1726 on the three preceding Saturdays; 176 new cases were admitted during the week, against 155, 157, and 140 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had increased from 128 to 149 in the three preceding weeks, fell again during the week under notice to 138, and were three below the corrected average. The causes of 51, or nearly 1·1 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Leicester, Nottingham, Bradford, and in 11 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Halifax, Sheffield, and Hull.

In 33 of the largest English towns 6888 births and 4375 deaths were registered during the week ending Sept. 8th. The annual rate of mortality in these towns, which had increased from 19·5 to 21·7 per 1000 in the three preceding weeks, declined again to 19·6 last week. In London the death-rate was 18·0 per 1000, while it averaged 20·7 in the 32 large provincial towns. The lowest death-rates in these towns were 10·1 in Derby, 12·4 in Halifax, 12·7 in Bradford, and 13·3 in Blackburn; the highest rates were 25·9 in Sheffield, 26·4 in Leicester, 26·8 in Preston, and 35·6 in Hull. The 4375 deaths in these towns included 1144 which were referred to the principal zymotic diseases, against 1060, 1181, and 1422 in the three preceding weeks; of these 871 resulted from diarrhœa, 101 from whooping-cough, 63 from diphtheria, 52 from "fever" (principally enteric), 37 from measles, and 20 from scarlet fever. The lowest death-rates last week from these diseases occurred in Halifax, Bradford, Blackburn, and Huddersfield; and the highest rates in Wolverhampton, Leicester, Burnley, and Hull. The greatest mortality from measles and from scarlet fever occurred in Oldham; from whooping-cough in West Ham, Nottingham, Derby, Preston, Sheffield, and Gateshead; from "fever" in Portsmouth; and from diarrhœa in Brighton, Wolverhampton, Leicester, Bolton, Manchester, Burnley, and Hull. The 63 deaths from diphtheria included 19 in London, 13 in Leicester, eight in Sheffield, four in Bristol, and four in Manchester. No fatal case of small-pox was registered last week in any of the 33 towns and only three small-pox patients were under treatment on Saturday last, Sept. 8th, in the Metropolitan Asylums Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 1736, against numbers declining from 1838 to 1702 on the four preceding Saturdays; 213 new cases were admitted during the week, against 157, 140, and 176 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 149 and 138 in the two preceding weeks, further declined last week to 124, and were 25 below the corrected average. The causes of 44, or 1·0 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Nottingham, Manchester, Salford, Newcastle, and in 13 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Norwich, Liverpool, and Halifax.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had declined from 19·0 to 16·9 per 1000 in the five preceding weeks, rose again to 17·6 during the week ending Sept. 1st, and was 4·1 per 1000 less than the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 13·2 in Leith and 13·7 in Dundee to 22·6 in Paisley and 24·4 in Aberdeen. The deaths in these towns included 54 which were referred to diarrhœa, 25 to whooping-cough, nine to measles, five to scarlet fever, five to "fever," and three to diphtheria. In all 101 deaths resulted from these principal zymotic diseases, against 108 and 103 in the two preceding

[1] Local Government Board Report, 1898-99, p. 167.

weeks. These 101 deaths were equal to an annual rate of 3·3 per 1000, which was 1·5 below the mean rate in the week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had been 56 and 52 in the two preceding weeks, rose again to 54, of which 27 occurred in Glasgow, six in Dundee, and six in Greenock. The deaths referred to whooping-cough, which had been 18 and 23 in the two preceding weeks, rose again to 25, 16 of which were recorded in Glasgow. The deaths from measles, which had been 16 and nine in the two previous weeks, were again nine during the week under notice, and included five registered in Edinburgh. The five deaths from scarlet fever corresponded with the number in the preceding week, and included three in Glasgow and two in Edinburgh. The fatal cases of "fever," which had been five and eight in the two preceding weeks, fell again to five, three of which were recorded in Glasgow, where two of the three deaths from diphtheria also occurred. The deaths from diseases of the respiratory organs in these towns, which had been 59 and 82 in the two preceding weeks, declined to 53 during the week under notice, and were 25 below the number in the corresponding week of last year. The causes of 19, or 3·5 per cent., of the deaths in these eight towns were not certified.

The annual rate of mortality in the eight Scotch towns, which had been 17·9 and 17·6 per 1000 in the two preceding weeks, further declined to 17·5 during the week ending Sept. 8th, and was 2·1 per 1000 less than the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·6 in Paisley and 15·1 in Edinburgh to 21·9 in Aberdeen and 23·2 in Greenock. The 540 deaths in these towns included 42 which were referred to diarrhœa, 21 to whooping-cough, seven to measles, five to diphtheria, four to scarlet fever, and four to "fever" (including one death from bubonic plague). In all 83 deaths resulted from these zymotic diseases, against 108, 103, and 101 in the three preceding weeks. These 83 deaths were equal to an annual rate of 2·7 per 1000, which was 2·4 below the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had been 52 and 54 in the two preceding weeks, further declined last week to 42, of which 17 occurred in Glasgow, nine in Edinburgh, six in Dundee, and six in Aberdeen. The deaths from whooping-cough, which had increased from 18 to 25 in the three preceding weeks, declined again to 21 last week, and included 11 in Glasgow, five in Greenock, and three in Aberdeen. The fatal cases of measles, which had been nine in each of the two preceding weeks, declined last week to seven, of which three were registered in Glasgow and two in Edinburgh. The deaths from diphtheria, which had declined from seven to three in the three preceding weeks, rose again to five last week and included two in Glasgow. The four fatal cases of scarlet fever showed a slight decline from recent weekly numbers, and included three in Glasgow. The deaths referred to different forms of "fever," which had been eight and five in the two preceding weeks, further declined last week to four, of which two (including the fatal cases of bubonic plague) were recorded in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 82 and 58 in the two preceding weeks, rose again last week to 79, and showed an excess of 25 over the number in the corresponding period of last year. The causes of 25, or nearly 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 21·2 and 27·0 per 1000 in the two preceding weeks, declined again to 26·7 during the week ending Sept. 1st. During the four weeks ending Saturday, Sept. 1st, the death-rate in the city averaged 24·5 per 1000, the rate during the same period being 19·8 in London and 16·0 in Edinburgh. The 179 deaths registered in Dublin during the week under notice showed a decrease of two from the number in the preceding week, and included 40 which were referred to the principal zymotic diseases, against numbers increasing from five to 33 in the five preceding weeks; of these 32 resulted from diarrhœa, four from whooping-cough, three from diphtheria, one from scarlet fever and from "fever," and not one either from small-pox or measles. These 40 deaths were equal to an annual rate of 6·0 per 1000, the zymotic death-rate during the same period being 5·3 in London and 2·2 in Edinburgh. The fatal cases of diarrhœa, which had increased from one to 25 during the seven preceding weeks, further rose to 32 during the week under notice. The cases of whooping-cough, which had been one and five in the two preceding weeks declined to four. The deaths from "fever," which had been three in each of the two preceding weeks, fell during the week under notice to one. The deaths referred to diphtheria, which numbered three, showed an increase, none having been registered in the two preceding weeks. The 179 deaths in Dublin included 52 of infants under one year of age and 30 of persons aged upwards of 60 years; the deaths of infants showing a decrease, and those of elderly persons an increase compared with those in the preceding week. Two inquest cases and two deaths from violence were recorded, and 58, or one-third, of the deaths occurred in public institutions. The causes of three, or nearly 2 per cent., of the deaths in the city were not certified.

The death-rate in Dublin, which had been 27·0 and 26·7 per 1000 in the two preceding weeks, further declined to 22·2 during the week ending Sept. 8th. During the past four weeks the death-rate in the city has averaged 24·3 per 1000, the rate during the same period being 19·2 in London and 15·6 in Edinburgh. The 149 deaths belonging to Dublin registered during the week under notice were 30 below the number in the preceding week and included 26 which were referred to the principal zymotic diseases, against 28, 33, and 40 in the three preceding weeks; of these, 20 resulted from diarrhœa, five from whooping-cough, one from "fever," and not one from either small-pox, measles, scarlet fever, or diphtheria. These 26 deaths were equal to an annual rate of 3·9 per 1000, the zymotic death-rate during the same period being 4·0 in London and 2·4 in Edinburgh. The deaths referred to diarrhœa, which had increased from nine to 32 during the five preceding weeks, declined again last week to 20. The fatal cases of whooping-cough, which had been five and four in the two preceding weeks, rose again to five last week. The 149 deaths in Dublin last week included 35 of infants under one year of age and 32 of persons aged upwards of 60 years; the deaths of infants showed a marked decline, while those of elderly persons slightly exceeded the number in the preceding week. Five inquest cases and four deaths from violence were registered, and 53, or more than a third, of the deaths occurred in public institutions. The causes of two, or 1·3 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING AUGUST, 1900.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in each of the 43 sanitary areas of London. With regard to the notified cases of infectious diseases in the metropolis, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·0 per 1000 of the population, estimated at 4,589,129 persons in the middle of the year. In the three preceding months the rates had been 7·2, 6·9, and 7·0 per 1000 respectively. The rates were considerably below the average in Chelsea, St. George Hanover-square, Westminster, St. Martin-in-the-Fields, Clerkenwell, and Wandsworth; while they showed the largest excess in Holborn, Whitechapel, St. George-in-the-East, Mile End Old Town, Poplar, St. Saviour Southwark, and Rotherhithe sanitary areas. Two small-pox cases were notified during August, both being in Wandsworth sanitary area; two small-pox patients were admitted into the Metropolitan Asylums Hospitals during the month, and two remained under treatment on Saturday, Sept 1st. The prevalence of scarlet fever showed a marked decline from that recorded in recent months; among the various sanitary areas this disease was proportionately most prevalent in Whitechapel, Mile End Old Town, St. Olave Southwark, Rotherhithe, Lewisham (excluding Penge), and Lee. The Metropolitan Asylums Hospitals contained 1657 scarlet fever patients at the end of August, against 1735, 1788, and 1804 at the end of the three preceding months; the weekly admissions averaged 152, against 198, 202, and 210 in the three preceding months. The prevalence of diphtheria showed a considerable decline from that recorded in the preceding month; the greatest proportional prevalence of this disease was shown in Whitechapel, St. George-in-the-East, Mile End Old Town, Poplar, St. Saviour Southwark, and Rotherhithe sanitary areas. There

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1900.

(Specially compiled for THE LANCET.)

SANITARY AREAS.	Estimated population in the middle of 1900.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.												
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
LONDON...	4,589,129	2	981	942	1	360	6	17	380	1	2630	6·0	—	107	30	98	213	1	81	3	1743	2236	5·1	8532	19·4	282
West Districts.																										
Paddington	130,104	—	35	11	1	5	—	—	12	—	64	5·1	—	1	—	2	3	1	1	—	58	66	5·3	203	16·3	321
Kensington	173,603	—	26	19	—	5	—	2	15	—	67	4·0	—	2	—	2	1	—	1	—	48	54	3·2	254	15·3	295
Hammersmith	110,203	—	23	24	—	7	1	1	6	—	62	5·9	—	—	—	1	—	—	—	—	49	50	4·7	183	17·3	304
Fulham	136,383	—	23	37	—	8	—	3	14	—	85	6·5	—	2	—	7	7	—	1	—	67	84	6·4	249	19·0	259
Chelsea	96,715	—	10	5	—	2	—	—	6	—	23	2·5	—	—	2	2	2	—	2	—	35	43	4·6	156	16·8	256
St. George Hanover-square	81,133	—	6	9	—	2	1	—	3	—	21	2·7	—	—	—	—	—	—	2	—	4	6	0·8	66	8·5	74
Westminster	51,657	—	7	10	—	1	—	—	4	—	22	4·4	—	1	—	1	—	—	—	—	9	11	2·2	85	17·2	239
St. James Westminster	21,457	—	7	3	—	—	—	—	1	—	11	5·3	—	—	1	—	1	—	—	—	2	4	1·9	30	14·6	310
North Districts.																										
Marylebone	139,777	—	23	23	—	4	—	1	13	—	64	4·8	—	6	—	5	6	—	—	—	35	52	3·9	240	17·9	208
Hampstead	81,766	—	16	15	—	4	—	1	4	—	40	5·1	—	3	1	1	2	—	—	—	11	18	2·3	82	10·5	131
St. Pancras	245,851	—	60	61	—	20	—	—	22	—	163	6·9	—	6	—	6	9	—	7	1	104	133	5·6	489	20·8	335
Islington	351,541	—	69	45	—	23	—	—	24	—	161	4·8	—	4	1	4	24	—	6	—	85	124	3·7	522	15·5	227
Stoke Newington	35,718	—	7	6	—	5	—	1	3	—	22	6·4	—	—	—	—	3	—	—	—	4	7	2·0	36	10·5	227
Hackney	225,519	—	43	62	—	16	—	—	20	—	141	6·5	—	3	4	4	7	—	1	—	119	138	6·4	405	18·7	162
Central Districts.																										
St. Giles	36,870	—	5	10	—	1	—	—	5	—	21	5·9	—	—	—	1	3	—	—	—	9	13	3·7	51	14·4	167
St. Martin-in-the-Fields	11,885	—	—	—	—	—	—	—	1	—	1	0·9	—	—	—	1	—	—	—	—	1	2	1·8	16	14·1	143
Strand	22,748	—	4	6	—	1	—	—	—	—	11	5·0	—	—	—	—	1	—	—	—	1	2	0·9	28	12·8	125
Holborn	29,188	—	10	6	—	3	—	—	7	—	26	9·3	—	2	1	—	1	—	—	—	15	19	6·8	73	26·1	333
Clerkenwell	66,007	—	11	6	—	2	—	—	9	—	28	4·4	—	5	—	2	2	—	1	—	29	39	6·2	146	23·1	275
St. Luke	40,655	—	8	2	—	3	—	—	5	—	18	4·6	—	2	1	1	—	—	1	—	21	26	6·7	108	27·7	212
City of London	26,922	—	6	7	—	3	—	—	—	—	16	6·2	—	—	—	—	1	—	—	—	1	2	7·7	47	18·2	267
East Districts.																										
Shoreditch	120,641	—	28	31	—	12	—	1	17	—	89	7·7	—	3	1	1	3	—	—	—	78	86	7·4	252	21·8	353
Bethnal Green	128,831	—	28	31	—	14	—	—	15	—	88	7·1	—	5	2	2	5	—	1	—	51	66	5·3	313	25·3	307
Whitechapel	82,220	—	61	34	—	3	—	—	8	—	106	13·4	—	4	—	4	2	—	—	—	20	30	3·8	157	19·9	217
St. George-in-the-East	48,875	—	17	19	—	5	—	2	8	—	51	10·9	—	6	1	1	4	—	1	—	25	38	8·1	145	30·9	289
Limehouse	58,944	—	16	9	—	4	—	1	9	—	39	6·9	—	4	—	—	5	—	—	—	32	41	7·3	165	29·2	446
Mile End Old Town	113,781	—	40	35	—	12	—	—	13	—	100	9·2	—	4	2	—	4	—	3	—	52	65	6·0	281	25·8	278
Poplar	170,968	—	33	67	—	37	—	—	14	—	151	9·2	—	7	—	11	5	—	5	—	109	137	8·4	427	26·0	360
South Districts.																										
St. Saviour Southwark	23,854	—	8	15	—	—	—	—	3	—	26	11·4	—	—	—	2	2	—	—	—	11	15	6·6	64	28·0	387
St. George Southwark	60,597	—	15	15	—	3	—	—	9	—	42	7·2	—	5	—	—	5	—	—	—	45	55	9·5	179	30·8	400
Newington	125,138	—	28	29	—	9	—	1	7	1	75	6·3	—	3	1	6	10	—	1	—	62	83	6·9	309	25·6	295
St. Olave Southwark	10,909	—	4	1	—	1	—	—	2	—	8	7·6	—	—	1	—	—	—	—	—	1	2	1·9	25	23·9	159
Bermondsey	85,920	—	17	23	—	13	—	—	7	—	60	7·3	—	—	2	4	6	—	—	—	29	41	5·0	169	20·5	271
Rotherhithe	41,246	—	16	14	—	2	—	—	8	—	40	10·1	—	1	1	3	4	—	1	—	19	29	7·3	89	22·6	358
Lambeth	312,152	—	57	63	—	11	3	1	17	—	152	5·1	—	5	1	4	9	—	2	1	76	98	3·3	539	18·0	237
Battersea	178,100	—	29	21	—	19	—	—	19	—	88	5·2	—	2	2	8	14	—	2	—	82	110	6·4	357	20·9	293
Wandsworth	217,004	2	41	27	—	9	—	1	8	—	88	4·2	—	2	1	1	6	—	—	1	82	93	4·6	343	16·6	271
Camberwell	268,457	—	44	51	—	11	1	—	15	—	122	4·7	—	1	—	6	29	—	—	—	104	140	5·4	447	17·4	281
Greenwich	184,582	—	28	35	—	11	—	—	18	—	92	5·2	—	3	—	2	11	—	2	—	75	93	5·3	355	20·1	317
Lewisham (excluding Penge)	93,548	—	33	11	—	3	—	1	3	—	51	5·7	—	—	3	1	5	—	—	—	28	37	4·1	159	17·7	246
Woolwich	41,600	—	11	4	—	1	—	—	4	—	20	5·0	—	9	—	—	2	—	—	—	32	43	10·8	122	30·6	393
Lee	40,722	—	15	12	—	—	—	—	—	—	27	6·9	—	—	—	—	2	—	—	—	8	10	2·6	48	12·3	248
Plumstead	65,558	—	13	20	—	2	—	—	2	—	37	5·9	—	6	1	2	7	—	—	—	15	31	4·9	118	18·8	304
Port of London	—	—	—	8	—	3	—	—	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including 12 cases of membranous croup.

† Including deaths from membranous croup.

were 1171 diphtheria patients in the Metropolitan Asylums Hospitals at the end of August, against 1402, 1212, and 1256 at the end of the three preceding months; the weekly admissions averaged 142, against 172, 151, and 183 in the three preceding months. The prevalence of enteric fever showed a marked increase over that recorded in recent months; among the various sanitary areas this disease was proportionally most prevalent in Stoke Newington, Bethnal Green, Mile End Old Town, Poplar, Bermondsey, and Battersea. The Metropolitan Asylums Hospitals contained 170 enteric fever patients at the end of August, against 176, 148, and 129 at the end of the three preceding months; the weekly admissions averaged 32, against 24, 21, and 20 in the three preceding months. Erysipelas was proportionally most prevalent in Holborn, Shoreditch, St. George-in-the-East, St. George Southwark, St. Olave Southwark, and Rotherhithe sanitary areas. The 17 cases of puerperal fever included three in Fulham, two in Kensington, and two in St. George-in-the East sanitary areas.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various sanitary areas of the metropolis, the deaths occurring in the public institutions of London having been distributed among the sanitary areas in which the patients had previously resided. During the five weeks ending Sept. 1st the deaths of 8532 persons belonging to London were registered, equal to an annual rate of 19·4 per 1000, against 16·6, 14·8, and 15·7 in the three preceding months. The lowest death-rates last month in the various sanitary areas were 8·5 in St. George Hanover-square, 10·5 in Hampstead and in Stoke Newington, 12·3 in Lee, 12·8 in Strand, and 14·1 in St. Giles; the highest rates were 26·1 in Holborn, 27·7 in St. Luke, 28·0 in St. Saviour Southwark, 29·2 in Limehouse, 30·6 in Woolwich, and 30·9 in St. George-in-the-East. During the five weeks of August 2236 deaths were referred to the principal zymotic diseases in London; of these, 107 resulted from measles, 30 from scarlet fever, 98 from diphtheria, 213 from whooping-cough, one from typhus, 41 from enteric fever, three from simple continued fever, and 1743 from diarrhœa. The lowest death-rates last month from these diseases occurred in St. George Hanover-square, St. James Westminster, Stoke Newington, St. Martin-in-the-Fields, Strand, and St. Olave Southwark sanitary areas; and the highest rates in City of London, Shoreditch, St. George-in-the-East, Poplar, St. George Southwark, and Woolwich. The 107 deaths from measles were only one-half of the average number in the corresponding periods of the ten preceding years; this disease was proportionally most fatal in Holborn, Clerkenwell, St. George-in-the-East, Limehouse, St. Saviour Southwark, and Woolwich sanitary areas. The 30 fatal cases of scarlet fever showed a decline of 66 from the corrected average number; the greatest proportional mortality from this disease occurred in St. James's Westminster, Holborn, St. Luke, St. Olave Southwark, Rotherhithe, and Lewisham (excluding Penge) sanitary areas. The 98 deaths from diphtheria were 102 below the average number in the corresponding periods of the ten preceding years; among the various sanitary areas this disease was proportionally most fatal in Fulham, St. Martin-in-the-Fields, Whitechapel, Poplar, St. Saviour Southwark, and Rotherhithe. The 213 fatal cases of whooping-cough were 55 in excess of the corrected average number; this disease showed the highest proportional fatality in Stoke Newington, Limehouse, St. Saviour Southwark, Rotherhithe, Camberwell, and Plumstead sanitary areas. The 45 deaths referred to "fever" showed a decline of 14 from the average number in the corresponding periods of the ten preceding years; among the various sanitary areas the "fever" death-rate was highest in Chelsea, St. George Hanover-square, St. Pancras, Islington, Mile End Old Town, and Poplar. The 1743 fatal cases of diarrhœa were 427 in excess of the corrected average; this disease was proportionally most fatal in Hackney, Shoreditch, Limehouse, Poplar, St. George Southwark, and Woolwich sanitary areas. In conclusion, it may be stated that the aggregate mortality from these principal zymotic diseases in London during August was more than 9 per cent. above the average.

Infant mortality in London last month, measured by the proportion of deaths of children under one year of age to registered births, was equal to 282 per 1000. The lowest rates of infant mortality were recorded in St. George Hanover-square, Hampstead, Hackney, St. Martin-in-the-Fields, Strand, and St. Olave Southwark; and the highest rates in Limehouse, Poplar, St. Saviour Southwark, St. George Southwark, Rotherhithe, and Woolwich sanitary areas.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are announced:—Staff Surgeons: J. F. Barry to the *Sappho;* J. H. Thomas to the *Devastation;* J. Acheson to the *Gladiator;* and G. H. Foott to the *Warspite* for the *Phaeton*. Surgeons: H. E. C. Fox to the *Gladiator* and B. F. Parish to the *Pelorus*.

INDIA AND THE INDIAN MEDICAL SERVICES.

Captain K. V. Kukday will officiate as Civil Surgeon at Aden in addition to his own duties. The services of Major H. C. Hudson are replaced at the disposal of the Military Department. Captain A. R. S. Anderson is appointed to be Senior Medical Officer at Port Blair. The services of Captain J. M. Crawford, Captain J. S. S. Lumsden, Captain C. Milne, and Captain H. Austen Smith are replaced at the disposal of the Government of India, Home Department. Lieutenant-Colonel H. Allison and Major G. H. Fink have been granted furlough for one year. Major A. J. O'Hara has been appointed to act as District Medical and Sanitary Officer, Chingleput, during the employment of Captain G. G. Giffard on other duty. Captain R. G. Turner has assumed charge of the Civil Medical duties of the Tochi Valley. The following officers (under Civil Leave Rules) have been recalled to duty:—Lieutenant-Colonel G. S. A. Ranking, Lieutenant-Colonel J. W. Macnamara, Lieutenant-Colonel J. Lewtas, Lieutenant-Colonel T. Grainger, Lieutenant-Colonel R. N. Campbell, Lieutenant-Colonel B. Doyle, Lieutenant-Colonel G. W. P. Dennys, Lieutenant-Colonel S. J. Thomson, C.I.E., Lieutenant-Colonel E. S. Brander, Lieutenant-Colonel F. F. MacCartie, Lieutenant-Colonel W. A. Lee, Major G. F. W. Braide, Major F. C. Clarkson, Major E. C. Hare, Major C. N. Bensley, Major W. Vost, Major R. Shore, Major A. Coleman, Major D. G. Crawford, Major F. J. Drury, Major A. O. Evans, Major E. R. W. Carroll, Major W. G. Alpin, Major R. H. Castor, Major A. V. Anderson, Major B. B. Grayfoot, Captain H. B. Melville, Captain C. Duer, Captain J. Jackson, and Captain J. B. Smith.

Colonel C. A. Maunsell, R.A.M.C., the Principal Medical Officer of the Mhow District of the Indian Army, will retire shortly. He served with the Royal Artillery in the Bhootan campaign of 1864–65, and was present at the capture of Fort Buxa and the taking of the Bala Pass. He also served in the Egyptian war of 1882, and was awarded the medal and Khedive's star.

Captain H. Smith has taken over charge of the duties of Superintendent of Jullunder Jail. Lieutenant J. A. Dredge has made over charge of the duties of Superintendent of the Bannu Jail to Lieutenant F. V. O. Beit. Captain N. Rainier has assumed charge of the Civil Medical duties of Abbottabad, relieving Captain F. R. Ozzard. Lieutenant J. W. F. Rait has assumed charge of the Civil Medical duties of Kurram, relieving Lieutenant P. Atal. Captain P. St. Clair More has assumed charge of the Civil Medical duties of Kohat, relieving Captain J. Mulvany. Lieutenant-Colonel S. Little has resumed charge of the office of Civil Surgeon, Rawalpindi, relieving Major G. B. Irvine.

Miss V. Adams, M.B., C.M. Edin., has been appointed Assistant Superintendent of the Government Maternity Hospital, Madras.

YEOMANRY CAVALRY.

Pembroke: Surgeon-Major G. R. T. Phillips to be Surgeon-Lieutenant-Colonel.

VOLUNTEER CORPS.

Royal Engineers (Volunteers): 1st London: Surgeon-Lieutenant S. R. Dyer to be Surgeon-Captain. Submarine Miners: The Tees Division: Surgeon-Lieutenant J. W. Edwards to be Surgeon-Captain. *Rifle:* The Queen's Rifle Volunteer Brigade (Highland Battalion) Lothian Regiment (Royal Scots): Dr. James Mowat to be Surgeon-Lieutenant and Mr. John Cumming to be Surgeon-Lieutenant.

TRANSVAAL WAR NOTES.

Major H. J. R. Moberly, R.A.M.C., Captain T. B. Beach, R.A.M.C., and Civil Surgeon Aymard lately prisoners of war, have arrived at Lorenzo Marques from Nooitgedacht, and will be sent to Durban.

Major Lawless, R.A.M.C., has been discharged from hospital to duty.

Dr. Howard Tooth has returned from South Africa after eight months' service with the Portland Hospital.

The hospital ship *Simla* has left Cape Town for England with Major W. B. C. Deeble, R.A.M.C., in charge of the sick and wounded, among whom were Major A. O. Fitzgerald, R.A.M.C., Captain Crawford, R.A.M.C., Lieutenant Croly, R.A.M.C., and Civil Surgeons W. B. Bennett and J. G. Willis.

The Welsh Hospital, now in Pretoria, has been increased from 150 to 200 beds.

The Imperial Yeomanry Branch Hospital at Maitland has about 70 patients.

Civil Surgeon J. Prestwick died from pneumonia on August 23rd at the General Hospital, Howick. Civil Surgeon H. A. Scott died from enteric fever at Pretoria on August 24th.

Lieutenant A. H. Benson, Militia Medical Staff Corps, has left Cape Town for England.

In an engagement near Warmbaths on Sept. 3rd, Mr. A. Cradock Fry, 9th Battalion Imperial Yeomanry, was taken prisoner while attending a wounded man.

THE OPERATIONS IN CHINA.

Captain B. H. McCalla, of the United States vessel *Newark*, in a report to the United States Navy Department, wrote: "I beg also to suggest and ask that the following mentioned officers of the naval forces acting concurrently for the relief of the Legations in Peking be offered medals for aiding the United States force under my command and for supporting us in action, by reason of which our loss of killed and wounded was not greater." Captain McCalla's list includes the names of "Fleet-Surgeon Thomas M. Sibbald, R.N., and Surgeons Edward B. Pickthorn and Eric D. Macnamara, R.N., for skilful treatment of 25 wounded Americans, notwithstanding they had the care of a great number of their own wounded."

DEATHS IN THE SERVICES.

Major George Hilliard, C.M.G., R.A.M.C., at the General Hospital, Newcastle, South Africa, on Sept. 7th, from a gunshot wound in the abdomen. He received his medical education at Trinity College, Dublin, where he graduated as M.B. and B.Ch. in 1885. He became Surgeon-Captain in 1887 and served with the Ashanti expedition under Sir Francis Scott in 1895–96, being awarded a star. He was promoted to be Major in February, 1899.

The Secretary of State for War has approved of revised regulations for the Army Nursing Service, which are to be taken into use at once.

Correspondence.

"Audi alteram partem."

"PROFESSIONAL ORGANISATIONS."

To the Editors of THE LANCET.

SIRS,—As the writer of the address which originated the present correspondence on this subject, perhaps I may be allowed to express my sympathy with Dr. James Ryley in his repugnance to any adoption by our profession of the methods of trade unions. I am convinced that such a course will alienate professional opinion and indefinitely delay the progress of reform. But while we cannot adopt the crude methods of the boycotter, it is necessary that we should have some means of bringing pressure to bear on those among us whose standard of ethics is so low as to be a source of injury and discredit to the whole body. It seems to me that the remedy lies in the education and elevation of the aforesaid professional opinion. The chief method of attaining this end is the encouragement by every possible means of local organisations. Every new-comer to a town or district should be informed that he is *expected* to become a member, and not to belong to the local society should stamp a man as an "outsider" in every sense of the word. Thus professional opinion could in every case be brought to bear on all disputed points. There should be an official code of ethics placed in the hands of every man on his qualification, and students should be taught that infringement of this code would prove an effective bar to an honourable career. At the same time no attempt should be made to obtain legal sanction for any such code. It was rightly said at the recent Paris Congress that "Deontology (the science of duty) has nothing to do with the civil law, which it entirely goes beyond." Also, "There are means of suppressing crime—these are punishments; there is another for correcting manners—this is example."

I am, Sirs, yours faithfully,

Sept. 10th, 1900. W. G. DICKINSON.

To the Editors of THE LANCET.

SIRS,—In reply to the letter of Mr. W. E. Wyllys in THE LANCET of Sept. 8th, p. 769, I wish to express my great pleasure that he agrees (although he does not say why) as to the desirability of a central representative body. I am delighted also to hear that the district committee of which he is the secretary are prepared to help the institute doctors in any really urgent case. This is to me quite a revelation, and contrasts curiously with the subjoined resolution and with the rejection by the committee of my own modest proposal. I have inquired carefully and cannot discover that an institute doctor has, under any circumstances, been met by any member of the district committee. But I am informed that when a member of the district committee was in despair over a bad case of post-partum hæmorrhage he accepted the aid of one of the institute doctors and rewarded the latter by cutting him (figuratively) the following day. To justify my own position I quote, precisely, the resolution of the district committee, passed unanimously at the annual meeting on Jan. 29th, 1897—a resolution never modified, never rescinded, and still in force:—

> That this district committee of the I.M.P.A. holds that those medical men who accept the posts of surgeons to the Great Yarmouth Friendly Societies Institute (considering the circumstances under which it was established) are acting in contravention of the rules and ethics of the profession; and therefore no member of this district committee can meet such surgeons in consultation, or hold any professional intercourse with them. Further, that medical practitioners in the town and neighbourhood (whether members or non-members of the committee) who do consult with institute surgeons are, in an equal degree, acting against the ethics of the profession, and accordingly members of the district committee *must*, under their rules and by-laws, refuse to meet such practitioners in consultation, or to have professional intercourse with them in any way whatever.

It is interesting to note how the field of vision of the medical eye, from its centre to its periphery, is filled with the wicked institute surgeon and how entirely the patient is ignored—no room for him whatever. I was not the only absentee from the meeting, for the resolution was passed by an oligarchy of six. I have had the temerity of making the following atrocious proposition:—

> That we meet institute doctors in consultation in the case of men properly belonging to clubs who are dangerously ill, and urgently, so far as can be ascertained, in need of further advice.

I have just received a note from Messrs. Moxon and Wyllys (president and secretary respectively) that it is "the resolution of the district committee to adhere to its position and consequently to reject your proposal." Very curious for persons who are prepared to help the institute surgeons, &c., is it not? Why, Sirs, my proposal is simply common humanity, and no threats of ostracism or of boycotting from the district committee shall persuade or frighten me to depart from it. *Re* London consultants, Mr. Wyllys denies my statement. Surely it is due to me to do more than this and to explain, as secretary, what is the attitude of the district committee towards these gentlemen. I press for a reply on this point.

On the subject of boycotting I have permission to quote the following letter I lately received from a much-esteemed consultant, whose aid we G.P.'s of Yarmouth are frequently invoking:—

> My personal feelings quite agree with yours. I have long felt that such trades-unionism ill becomes a profession which is supposed to consist of educated gentlemen and that *the only effect*, so far as I can see, is to reduce in the eyes of the lay public what ought to be a noble profession to the status of a trade. This boycott has the effect (and there is no use shutting our eyes to the fact) of lowering the social status of the profession in the view of the educated public—a thing which we must all deeply deplore, and which I fear will in the future help to deter the *better* class of the youth of to-day electing to choose medicine as an honourable profession.

As I am a very busy man medically and municipally, with little time to spare, I hope, Sirs, this is the last communication I may have to make to your columns on "Professional Organisations." With many thanks for your editorial comments, I remain, Sirs, yours faithfully,

JAMES RYLEY, M.D. Lond.

Great Yarmouth, Sept. 10th, 1900.

"THE COVENTRY DISPENSARY."

To the Editors of THE LANCET.

SIRS,—I hope the profession in Coventry does not endorse the language of Dr. Richardson Rice when he says that he will give "the consultants of Birmingham an opportunity of deciding whether in the future they are prepared to uphold the honour of the profession or the interests of their pockets." May we put aside for the moment the honour of the profession, which does not appear to be in question, and remember that this is a matter of pounds, shillings, and pence, in which a section of the medical profession of Birmingham is to be asked to make a definite pecuniary sacrifice in order to help the profession in Coventry to raise their fees? I have already stated that I have every belief in the willingness of the medical profession in Birmingham to give the most careful consideration to any application coming to us from the profession in Coventry, but language of this sort does not help matters. It makes one wonder whether the failure hitherto experienced by the profession in Coventry to obtain the desired changes in the organisation of the dispensary may not have been due to this unconciliatory, indeed I might say the discourteous and quarrelsome, temper displayed by those who unfortunately are put forward as their spokesmen. There are many men in the profession who urge with incontrovertible truth that no boycotting resolution would justify a refusal to render assistance in an urgent case and therefore there is always a loophole by which those who do not wish to be bound by it may escape. If the scheme is to succeed there must be a strong unanimous feeling that the reforms asked for are wise, moderate, and just and that those who ask for them are animated by a genuine desire for reform and not by animus against an institution or the persons connected with it.

I am, Sirs, yours faithfully,

Birmingham, Sept. 11th. ROBERT SAUNDBY.

To the Editors of THE LANCET.

SIRS,—I should not have troubled you further, but Dr. Saundby speaks of my letter as being uncandid and unfair and as causing him irritation. I have no quarrel with Dr. Saundby and certainly should not like to be unfair to him, but I should like to remind him that at Ipswich he asked "why the men came to the meeting year after year howling at the Coventry Dispensary," and if he can reconcile such a statement with rendering assistance to the cause of reform in Coventry I shall have nothing more to add. My letter in THE LANCET of August 25th has fully explained the situation, and as all the statements are accurate I cannot do more than supply the facts. Dr. Saundby was appealed to, as I have stated, to support the profession in Coventry, and we who laid the case before him were representing the majority of medical men practising in the town.

Does Dr. Saundby wish your readers to understand that he usually acts in a dual capacity, one as President of the Council of the British Medical Association and the other as a consulting physician of Birmingham—in the former position supporting the profession against a condemned institution, and in the latter supporting the institution against the profession? Surely the fact of his being approached as the President of the Council should not lead him to suppose that he was not acting as one of the profession in Birmingham.

In conclusion, I quite agree with Dr. Saundby that false charges would not hasten the cause of reform which Coventry seeks to apply to its professional life, but a thorough mastery of the facts by him would in all probability bring this discussion to a close.

I am, Sirs, your faithfully,

Coventry, Sept. 11th, 1900. EDWARD PHILLIPS.

To the Editors of THE LANCET.

SIRS,—I have read with considerable interest the letters upon the Coventry Dispensary and I do not wish to further prolong the discussion, as I think I observe in Dr. Saundby's recent letters to the journals a desire to aid the profession in stamping out these degrading conditions of unjust and uncalled-for medical aid regulated by a lay element which totally disregards the advice and counsel of its medical officers. The Coventry Dispensary is entirely under the control of a committee of men who have so much confidence in themselves and in the management of that which seems to be the business and training of a medical man that they not only have sole charge of the finance, but exercise their prerogative as to how these medical men must carry on their profession.

The real reason of this terrible condition of things is this, that this institution has grown so large that even at the rate of nearly one farthing per head per week, which is about the sum paid to the medical officers, the return in the aggregate amounts to something over £300 a year to each medical man, and the certainty of this substantial sum overrules the professional instincts expected to be found in those belonging to so learned and honourable a calling. Nevertheless, I do hope that by the assistance of the heads of the profession, and of those who should set an example by action or by advice, the day will come when the medical men of the Coventry Dispensary will return to the fold of that great body of registered practitioners who, from their liberal education and the oath of allegiance to their *alma mater*, should do all such matters and things to the honour of the noble calling to which they belong.

I am, Sirs, yours faithfully,

CHARLES WEBB ILIFFE,
Coroner, North Warwickshire.

Willenhall, Coventry, Sept. 11th, 1900.

"THE CAUSE OF CARIES OF THE TEETH."

To the Editors of THE LANCET.

SIRS,—I have followed with much interest the correspondence in THE LANCET on the above subject. I fully agree, on general biological grounds, with the views of the writers who hold that disuse or imperfect use of the jaws during growth tends to lead to the faulty condition of jaws and teeth so frequently met with in the newer generations of civilised men, and of those who have recently come under the influence of civilisation. In my opinion the condition, as far as the jaws are concerned, is one of "imperfect evolution" and "stunted growth" rather than of "atrophy"—which latter term implies a previous normal condition in the individual affected. I also subscribe to the view that disuse of the teeth tends to their deterioration and degeneration prematurely. But this, as are most etiological problems, is a complex one. I beg to be permitted to bring to the notice of those who are working at the elucidation of this subject, as well as your readers generally, a paper read by me before the Odontological Society of Great Britain (and published in the Transactions of that society in January, 1890), entitled, "Nasal Obstruction and Mouth Breathing as Factors in the Etiology of Caries of the Teeth and in the Development of the Vaulted Palate." In this paper I claimed for these factors an important share in the production of caries and vaulted palate, but the paper appears to have escaped the notice of recent writers on the subject. Ten years' further experience has only added strength to my conviction that in nasal obstruction and mouth-breathing we have an even more powerful and more common factor in producing these abnormalities than in the character or mode of preparation of the food.

I am, Sirs, yours faithfully,

SCANES SPICER, M.D., B.Sc. Lond.

Welbeck-street, W., Sept. 12th, 1900.

To the Editors of THE LANCET.

SIRS,—You have kindly published a letter of mine in THE LANCET of Sept. 8th suggesting that the removal of the wheat-germs from the flour by roller-milling causes defective teeth owing to mal-nutrition. As I wish to keep the two points—defective teeth and caries of the teeth—as far as possible distinct, it is hoped you will excuse me again addressing you. As is mentioned in the report of the Decay of Teeth Committee of the British Medical Association the mouths of men working in flour-mills invariably present extensive decalcification of the enamel and dentine. In milling 2 per cent. loss by waste is reckoned in converting wheat into flour. Much of this waste floats in the air, and the men working in the mill are likely to have a proportion of unfermented wheaten starch in the mouth, and, owing to the action of the saliva, an almost continuous supply of lactic acid bathing their teeth. When the wheat-germs are in the flour a proportion of the starch is converted into grape-sugar during baking, and thus lactic acid is evolved while the bread is in the oven; instead of, as when there is no diastase in the flour, being evolved in the

mouth to decay the teeth. Thus if the wheat-germs are removed, as in roller-milling, a greater amount of fermentation takes place in the mouth and a large amount of lactic acid is formed there to cause caries of the teeth.

The sub-committee of the British Dental Association, which some years ago examined the teeth of many school-children, reported that the children of certain low-class schools had better teeth than those of the high-class schools. I have suggested that this fact was due to the children of these low-class schools having been largely fed on contract bread such as is supplied to many unions. This contract bread contains wheat-germs which the roller-miller has removed while making the flour for his higher class customers. The earliest forms of mills, the old stone hand-mills, are still to be found in India, but are rapidly being replaced by gigantic roller-mills. I am informed that now the natives are commencing to have bad teeth. It appears that wherever the roller-mill is in operation carious teeth are found instead of the sound ones of the days of the stone-mill.

I am, Sirs, yours faithfully,

THOMAS G. READ, D.M.D. Harvard, L.D.S.R.C.S. Eng.

Cavendish-square, W., Sept. 8th, 1900.

"A NOTE ON THE SAFEST METHOD OF REMOVAL OF THE APPENDIX."

To the Editors of THE LANCET.

SIRS,—I see in THE LANCET of August 4th, p. 328, in "A Note on the Safest Method of Removal of the Appendix," a curious statement connecting my name with a method of treating the stump in appendicectomy, which I have *never* followed. The writer says: "The continental method—that commonly followed by Terrier, Hartmann, and most Paris surgeons—is simply to ligature the inflamed and diseased appendix near its base, resect it with the thermo-cautery, cauterise the stump, and then let it fall back into the abdomen." I have never used it because it is my principle in abdominal surgery never to leave a stump in the abdominal cavity and never to consider an operation completed without perfect union of all peritoneal surfaces. Moreover, I never use the cautery in abdominal surgery. I cut the peritoneum and the muscular coats of the appendix, I ligate the mucous membrane, and I invaginate this very small stump in the parietes of the cæcum, placing a continuous Lembert suture on the external coats of the intestine, so that when the operation is finished infection from the stump is impossible.

I am, Sirs, yours faithfully,

Paris, Sept. 10th, 1900. DR. HARTMANN.

"THE PRESENT POSITION OF PATHOLOGY IN ENGLAND."

To the Editors of THE LANCET.

SIRS,—The letter of Dr. C. Powell White in THE LANCET of Sept. 1st raises a subject of great interest to the public and the medical profession. It is true that clinical observation is invaluable and can never be replaced, but it is also a fact that diagnosis is increasingly being assisted by pathological methods, and disease prevented—e.g., rabies has been recently practically extinguished in this country by the application of a simple method suggested by pathology. Indeed, pathology has emerged from a pure to an applied science, as is evidenced by the multiplication of laboratories attached to hospitals and health departments in all countries. It is from the aspect of an applied science that many have to view pathology, including myself. Strange to say this application of scientific methods to medicine benefits the public and the profession as a body, but not the actual workers in pathology. Judging from an analogy in commerce—viz., the success of firms that employ scientific chemists at high fees—the policy is narrow. The labourer is worthy of his hire, why not the pathologist? It must be acknowledged that attempts are made to "sweat" pathologists and to belittle the work, for the attitude of the profession and the public in this country is somewhat behind the age. It savours of that past British disfavour of "scientific" methods as compared with "practical," which cannot, or will not, realise that action and thought can be combined successfully. In commerce we are learning this by some very rough lessons.

Now is the time ripe for the profession in this country to consider and determine the true value to set on the subject, and on the rewards of the pathologist (whether he practise it solely or associates it with clinical or state medicine) and so to mould public opinion. What valid reasons can be given for refusing to pathology the remuneration accorded to other special branches of medicine? None. Failing this due recognition what is the fate of such cheap work? In the end it deteriorates. The poorer classes should have facilities for pathological examinations as for other branches of medicine, and to this end committees of hospitals shou'd assist this department in every way, and county or municipal authorities should provide health laboratories. As an assistance to the poor only are research associations of value, for by allowing the well-to-do to escape a just toll they damage the profession and indirectly the science in question. The reason that the status granted by many to the pathologist is not rendered by all, as Dr. Powell White says, is not clear; it appears to be connected with the degree of knowledge and courtesy of those with whom he has to deal. Therefore I venture to urge that the attention of pathologists, pathological societies, and the pathological committee of the British Medical Association should be actively directed to the matter, since it affects the medical and public welfare. I am, Sirs, your faithfully,

Plymouth, Sept. 8th, 1900. F. BUSHNELL, M.D.

NEGATIVE SERUM REACTION IN A CASE OF TYPHOID FEVER COMPLICATED WITH LUNG TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—The errors that exist in connexion with Widal's test as a means of diagnosing typhoid fever are few. Dr. Horton-Smith in his Goulstonian Lectures, as quoted in THE LANCET of April 14th, says that the estimate of 3 per cent. of failures in the agglutinizing power of the blood in undoubted cases of enteric fever is possibly a high one. Yet the fact that fallacies exist at all detracts from the value of the reaction as a feature to be absolutely relied on, and gives an element of uncertainty to those individual cases where the symptoms are anomalous and mistakes especially important to avoid. In the *Archives de Médecine et de Pharmacie Militaires* for January, 1900, a description was given of a case where typhoid fever in a tuberculous individual did not give the serum reaction, and in mentioning to your readers a somewhat similar case I do so in the hope that the attention of workers in the subject may be directed to other pathological conditions present with special relation to the effect they have on the serum reaction. The patient was a married woman, 36 years of age, whose family history was of a markedly tuberculous character. She had herself been treated for "consumption of the left lung" some six years ago, but had improved considerably since then. In March, 1899, however, an attack of hæmoptysis laid her up. When the case first came under my observation in December last complaint was made of general symptoms of a fever, which later proved to be typhoid fever. The typical rose-coloured rash appeared on the ninth day of the illness and successive crops of the papules came out until the eighteenth day. The abdomen had in the meanwhile become tender all over; it was fuller than normal; the spleen was enlarged; and soft watery stools were passed three or four times daily. The temperature rose gradually and the chart did not at any time show a greater morning remission than 2°. From the beginning a troublesome cough developed. The physical signs in the chest were those of a diffuse bronchitis with the exception, however, of a dull patch in the right apex where amphoric breathing and metallic râles could be detected. Sputum was brought up in large quantities with greenish masses and a great many nummular pieces. On the ninth day some blood was sent to the Clinical Research Association, from which body I received a report that it did not give the typhoid reaction. Two sharp attacks of hæmoptysis were noted during the illness, the first on the ninth and the next on the eighteenth day. In the fifth week improvement was noted in the abdominal symptoms; the temperature was lower by 2° and was distinctly not of a hectic type. The cough, however, persisted, keeping the patient awake at nights. By the seventh week all the abdominal symptoms disappeared but the pyrexia and cough persisted. About this time physical examination of the lungs showed signs of cavity at the right apex and some consolidation of a patch below the left clavicle. As it was

now considered that the activity of the lesion of the lungs was alone keeping up the pyrexia solid food was allowed. The appetite was extremely good. The patient has since improved greatly in health and at the time of writing (September) a fair amount of weight has been put on.

I am, Sirs, yours faithfully,

DAVID A. BELILIOS, M.R.C.S. Eng., L.R.C.P. Lond.

Wimbledon, S.W., Sept. 8th, 1900.

"HALLUX RIGIDUS."

To the Editors of THE LANCET.

SIRS,—Both the letter of Mr. Lucy[1] and the article by Mr. Haward[2] to which it relates seem to ignore a surgical rule for which I have long contended in THE LANCET[3] and elsewhere; that whenever there is in the metatarso-phalangeal joint of the great toe irritation which is disproportionate to the degree of eversion, the great toe will be found to have been habitually packed *beneath* the second and that to set it free to resume the *position of rest* is the principal indication for treatment.

I am, Sirs, yours faithfully,

Gloucester, August 25th, 1900. T. S. ELLIS.

"THE EXPECTANCY OF LIFE IN CASES OF CANCER OF THE BREAST."

To the Editors of THE LANCET.

SIRS,—I have been much interested in Mr. Barker's clinical lecture on the above subject published in THE LANCET of Sept. 8th. Such an accurate and careful analysis of cases as is there given is undoubtedly of the highest value. In one point, however, I think the statistics are defective in that it is not stated how many were cases of carcinoma of the right and left breast respectively. My reason for drawing attention to this omission is that my own clinical experience leads me to the opinion that the prognosis in cases of carcinoma of the right breast is not so favourable as that of the left *as regards the spread to internal organs*. I am inclined to think that inquiry will show that the liver is sooner and more frequently attacked in carcinoma of the *right* breast than that of the left. If this be so—and the arrangement of lymphatics favours it—then the expectancy of life in cases of cancer of the breast must be reckoned separately, and the two mammæ not placed on the same footing as is assumed now in all such statistics. This point of omission also characterises the valuable tables on the same subject published by Mr. Watson Cheyne. I have seen him since his return from South Africa, and he has kindly said that he will look into the matter.

I know that there is a difference of opinion amongst authorities as to which breast is most frequently attacked primarily by carcinoma. Mr. Roger Williams says that "nearly all statistics show that in women the left breast is more frequently affected than the right," while Mr. Marmaduke Sheild's cases at St. George's Hospital give only a slight preponderance in favour of the left mamma. Mr. Bryant, again, finds the proportion nearly equal, and Mr. Gross considers right mammary cancer to be more frequent than that of the left. Be that as it may, I am inclined to think that the expectancy of life is not so good in cancer of the right breast as in that of the left, owing to the greater liability to secondary involvement of the liver in the former case. As statistics like those of Mr. Barker might help to establish or refute this opinion I have ventured to draw attention to what I regard as an omission in them.

I am, Sirs, yours faithfully,

Glasgow, Sept. 8th, 1900. GEORGE THOMAS BEATSON.

THE FUNCTION OF THE SYMPATHETIC AS A FACTOR IN ACUTE DISEASE.

To the Editors of THE LANCET.

SIRS,—In a recent article on Tachycardia following Enteric Fever,[4] while acknowledging my indebtedness to Surgeon-Captain P. C. Fenwick for his kind help in prosecuting the investigations on which the article in question was based, I stated that he had adduced a theory of sympathetic irritation underlying the symptoms I endeavoured to describe, which, however, I could not bring myself to accept as a cause of the rapid pulse rate and other features portrayed in my article.

Surgeon-Captain Fenwick has the courage of his convictions and has accordingly adduced his reasons in an article appearing in THE LANCET of August 11th (p. 402). I cannot help regretting that he appears to have fallen into the error so commonly pursued and, if I may so say without offence, so convenient to adopt when the difficulty of explaining an obscure nervous disease arises—to refer such trouble to the sympathetic nervous system. This tendency is by no means peculiar to himself. I have not infrequently noticed when no pathological lesion can possibly be suggested, and the functions of the heart are deranged, how customary it is to suggest that the symptoms should be referred to reflex action. This, after all, seems to be merely one way of begging the question, for the premiss equals the conclusion that the symptoms are the manifestations of functional disturbances of the organ which is controlled by the sympathetic, and therefore the sympathetic must be at fault. The suggestion of the reflex action is only a further instance of the same fallacy. It is with many of us, and far too much the habit of teachers and their followers, to seek everlastingly for some local and specific lesion to account for symptoms—to desire realism and to ignore the psychical element, to disregard the fact that after all the brain is the great centre, not only of control exercised over all actions, both voluntary and reflex, but in addition the receiver and sole interpreter of all impressions from without—that besides being the executive of the will it is also the throne of the intelligence.

Now in the study of disease and its symptoms such consideration should always present itself to the mind of every thoughtful physician, and if this is the case it seems to me that the first explanation of many functional disorders ought to be the psychical one. In my cases, with symptoms described as seen in the epidemic of enteric fever so prevalent in the army in South Africa, the fatiguing work and forced marching, worry, anxiety, poor food, and bad sanitation inseparable from such a campaign would all tend to demoralise the central nervous system, including both the mental processes and physical energies, to such a degree that any organ might be readily irritated and disturbed in its normal workings; and I would maintain that merely to refer these conditions to an affection of the sympathetic is wholly unsatisfactory. The irritable heart of the soldier of the American Civil War has often been written about, and is an illustration of the cardiac disturbance I have described. It is significant that these cases occurred without the intervention of acute disease and that the cardiac trouble was more frequently complained of by the civilian volunteers than by the militia, this fact being probably due to the more sensitive nervous system of the town-bred man.

I have only to add in conclusion that in lunatic asylums many curious vagaries of the heart and circulation are constantly observed without definite organic disease being discoverable.

I am, Sirs, yours faithfully,

Sept. 10th, 1900. CHARLES BURLAND, M.D. Brux.

DRAINAGE OF COLWYN BAY.—The Urban District Council of Colwyn Bay has decided to re-sewer the whole of the district at an estimated cost of £45,000.

UNIVERSITY OF CAMBRIDGE.—Examination in Sanitary Science.—The order of examination for October is as follows:—*Part I.*—Tuesday, Oct. 2nd, 9 A.M. to 12 noon, in the Arts School, paper in hygiene; 2 to 6 P.M., in the Pathological Laboratory, practical bacteriology. Wednesday, Oct. 3rd, 9 A.M. to 12 noon, in the Arts School, paper in hygiene; 2 to 5 P.M., in the Chemical Laboratory, practical chemistry. Thursday, Oct. 4th, 9 to 10.30 A.M., in the Arts School, paper in bacteriology; 10.30 A.M. to 12 noon, in the Arts School, oral; 2 to 6 P.M., in the Physiological Laboratory, practical microscopy and oral. *Part II.*—Tuesday, Oct. 9th, 9 A.M. to 12 noon, in the Senate House, paper; 1.30 P.M., in the Senate House, practical and oral. Wednesday, Oct. 10th, 9 A.M. to 12 noon, in the Senate House, paper; 1.30 to 5 P.M., in the Senate House, practical and oral. Thursday, Oct. 11th, 10 A.M., in the Senate House, oral.

[1] THE LANCET, August 18th, 1900, p. 548.
[2] THE LANCET, July 28th, 1900, p. 240.
[3] THE LANCET, April 29th, 1899, p. 1155.
[4] THE LANCET, July 28th, 1900, p. 253.

THE TENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL CORRESPONDENT.)

FIRST SECTION.

TINNED MEATS.

CONSIDERING that the wars in South Africa and in China involve in different degrees and climes the great problem of feeding armies, the paper communicated to the First Section by Dr. L. VAILLARD, Professor at the Val de Grâce military school, is of practical interest at this moment. He dealt with the accidents that arise from the consumption of tinned meats. The process of tinning is simple and rapid. The meat is first boiled for about an hour. The broth is then separated from the meat and concentrated, so that when cold it forms a stiff jelly. Now this jelly and the boiled meat are placed together in tins and are hermetically closed by soldering, after which they are sterilised. The temperature for each sterilisation varies from 110° to 115° C. and the process generally takes an hour and a half. It is difficult to say what the effect of such food may be on the civil population, but with the army and navy there are good opportunities for precise observation. For instance, the French army consumes 3,000,000 tins annually and each tin contains the rations for five men. Thus we may say that 15,000,000 rations of tinned meat produced 201 cases of sickness in 1897 and 198 cases in 1898, resulting in only one death. The illnesses provoked can be divided into two distinct categories: firstly, various forms of indigestion occurring within from two to six hours after consuming the food and not accompanied by fever; secondly—and these are the majority of cases—the symptoms commence from 12 to 50 hours after the consumption of the tinned meat and thus follow on a period of incubation similar to that of diseases due to infective microbes; there is generally fever, the digestive troubles are more like those of gastro-enteritis, and sometimes there is blood in the evacuations. As for chemical poisoning, especially that due to lead, no symptoms indicating such accidents have been observed. Nor is there evidence to show that in course of time the meat preserved may deteriorate. Millions of tins are five and six years old before they are opened and the contents are eaten. Professor Vaillard argued that the toxic substance must have been contained within the meat itself and this might be the case if the animal had been overworked or was diseased when killed. It is then possible that though the living organisms may be killed by the process of sterilisation they may first produce poisonous conditions in the meat. It is also possible that delays, imperfection, or malpractices in the process of preservation may have introduced micro-organisms. In warm weather a few hours may suffice to deteriorate the meat. When this occurs attempts are sometimes made to sterilise this meat a second time so as to arrest the process of putrefaction. When the meat is bad the gas engendered causes the tin to bulge out, but even this can be to all appearances repaired. A very small hole is drilled in the tin, then the tin is exposed to heat again, the organic life which it contains is destroyed, and an invisible speck of soldering covers over the little hole. But if the living microbes are killed have they not produced poison during their lifetime that retains its toxic powers? Some of the meat examined contained such a number of dead cocci and bacilli as to bear all the appearance of an artificial culture broth. Are not chemical substances formed which are not affected by the sterilisation process? Nor is this always revealed by a bad odour. Some preserved meat that seemed good and sweet killed the guinea-pigs which were inoculated. But this does not prove that the meat would have the same effect when eaten. On the contrary that which killed when given as a subcutaneous injection was quite harmless when given as food. Experiments should be made with the preserved meats that have produced sickness, whenever any of it remains. Nevertheless this risk must not be exaggerated. Strict surveillance is needed to ensure that all the necessary precautions are adopted in tinning and that nothing but sound meat is employed.

CHEMICALS AND THE PRESERVATION OF FOOD.

Bearing upon this question Dr. F. BORDAS, member of the French Consultative Committee of Hygiene, presented a report on the Use of Chemicals for the Preservation of Food. After describing the chemicals generally employed for this purpose, he urged that though some of them seemed to occasion no inconvenience the effect of others was open to doubt, and it might be said that, as a rule, any substance that could prevent fermentation must also interfere with the digestive process. Certain hygienists, such as Professor J. B. Bradbury, Dr. B. A. Whitelegge, and the late Sir B. W. Richardson, had suggested that when chemicals were employed the fact and the dose should be stated on the label. But it was objected that it would be impossible to control the dose. Nor could it be stated that a chemical was not injurious, for what might be eliminated easily by the young and healthy would be very injurious to elderly persons or to persons suffering from some kidney disease. If evil effects were not produced at once the constant absorption of such chemicals must in the long run be injurious. Therefore it was regrettable that any hygienists should have appeared to sanction their employment, and Dr. Bordas concluded by submitting a motion affirming that no antiseptics whatsoever, even if considered to be harmless, should be employed for the preservation of food.

During the portion of the discussion at which I was able to be present Dr. NEFLER and Dr. NOCARD were both absolutely opposed to the use of chemicals. The only safe preservatives were cold or heat; all others were mere methods of deception; they only served to preserve appearances, and the food which seemed wholesome was often poisonous. Dr. FOEDOR of Budapest agreed with this opinion, but Dr. FRAENKEL thought that the use of only certain chemicals should be forbidden. Non-toxic chemicals might sometimes be advantageously utilised. Dr. KIRSHNER and a French medical practitioner were of the same opinion. No vote was then taken, but at another sitting Dr. Bordas's motion was adopted, and it has been seen that this opinion of the section condemning the use of any chemical whatsoever for the preservation of alimentary substances was confirmed by the final and general meeting of the entire Congress.

THIRD SECTION.

THE WINDOW, THE ROOM, AND THE SUN.

One of the most distinguished of French sanitary reformers, M. EMILE TRÉLAT, presented a report to the Third Section on the Orientation and Mapping Out of Streets in Large Towns. No one has done more for domestic hygiene than M. Emile Trélat. As the founder of l'École Spéciale d'Architecture he was among the first to insist that architects should study sanitation. The most perfect systems of ventilation—such, for instance, as that of the Grand Opera at Vienna—have been carried out by his pupils in accordance with the principles which he taught. To his eloquence as a speaker and his facile style as a writer we owe the fact that the importance of a single and unilateral light in schools is so well appreciated on the continent, and he has also helped sanitary reformers to study and appreciate the marked effect produced by the porosity of walls in the ventilation of dwellings. These were the subjects of papers read by M. Emile Trélat at previous international congresses of hygiene, and now he insisted on the action of the direct rays of sunlight in preserving the health of urban populations. Unfortunately most towns and streets were built before any thought had been given to this factor. It was a curious fact that though so many religions were, in their origin, based on sun worship so little care had been taken to admit the rays of the sun within dwellings. Yet in the building of temples and churches this principle was observed, and by their orientation, the large windows being built east and west, the direct rays of the sun were brought upon the high altar. M. Emile Trélat pleaded that the dwelling-room should be placed in communication with the high heavens. Let the walls be pierced and the windows raised up to the ceiling, so that the rays of the sun might reach the farthermost wall. But he pointed out that the sky was not throughout equally beneficent. A distinction must be made between the light that descended from the zenith and that which came from the horizon. The first was a pure light, but as it descended vertically its vibrations could not penetrate through the windows. On the other hand, the light from the rising and setting sun travelled horizontally and could reach the farther ends of the rooms of the houses. But this light was not so pure; it had been somewhat deteriorated by passing through

prolonged layers of dust and vapours escaping from the soil. The intermediary light would therefore be the most useful for the interior of dwellings. This, the slanting light, as opposed to the vertical and the horizontal lights, was the light which should be introduced through the windows. Experience showed that it was at an angle of 30 degrees that we reached the mid-heavens, and to obtain this light houses should not be higher than two-thirds of the width of the street. Further, the height of a room should be equal to two-thirds of its depth. In other words, if the room was ten feet high the distance of the furthermost wall from the window should not be more than 15 feet and even in that case windows should reach the ceiling. This was not only necessary for the purification or natural disinfection of the interior of the room by the direct rays of sunlight, but also so as to prevent damp. A damp house was always unhealthy. The dampness from the soil could be avoided by building cellars under the house, by constructing a draining trench round the house, and by the use of a damp-proof course in the foundations, but it was not so easy to prevent the walls from becoming damp in consequence of rain and the humidity of the atmosphere. The wet might be excluded by impermeable paint or some other sort of coating, but this destroyed the porosity of the walls and therefore could not be recommended. The true remedy was thick walls and a good exposure to the sun. The heat of the sun would then dry the walls before the dampness had time to reach their interior surfaces. As in towns some shade must be thrown on the dwelling by the houses in front and behind, all that could be done was so to place these houses as to secure for them, not all the sun's rays, but the best rays and as much of them as possible. In temperate climates the conditions that prevailed in winter must be considered and calculations must be based upon the incidence of the sun's rays during the shortest day of the year. Then it was also necessary to take into account the direction of the streets. First those streets which were parallel with the meridian; when the sun was in the south they were well swept by its rays, but only for a short time. On the other hand, streets that were parallel with the equator would be constantly in the shade of the houses that faced them. Adolphe Vogt, taking the latitude from Vienna to Paris, had studied the purely geometrical problem—namely, what should be the height of the houses and the width of the streets so that the rooms on the ground floor should receive direct rays of sunlight in the winter. The result was that streets running from north to south should be twice and one-third as wide as the houses were high, while those that ran from east to west should be four times as wide as the houses were high. Even M. Trélat, who is an idealist, recognises that such conditions are impossible. Habitations so widely apart would cease to constitute a town, for the object of a town was concentration. But, nevertheless, this calculation might at least serve to show that every effort should be made to widen the streets and to avoid building lofty houses. M. Trélat concluded by urging that these principles were too often neglected by municipalities in spite of the improvements which had been effected in other directions.

In the short discussion that followed M. BECHMAN (the President of the section) lamented that the tendency in all large towns was, on the contrary, to build loftier and loftier houses. The section agreed to accept the conclusions of M. Trélat's report—namely, that it was the duty of sanitary reformers to seek to widen the streets and to prevent the building of tall houses.

THE SMOKE NUISANCE.

Dr. ARMAND GAUTIER and Dr. NESTOR GRÉHAUT presented a report on the Pollution of the Atmosphere of Large Towns. Within the walls of Paris there were, they said, about 8000 hectares of land and on this surface some 3,000,000 tons of mineral fuel were burnt per annum. This made 375 tons per hectare, or about one ton per day per hectare, or again about 100 grammes of fuel per square metre. These 100 grammes contained about 70 grammes of pure carbon and should therefore yield in combustion 246 grammes or 125 litres of carbonic acid. Taking the chimneys at an average height of 20 metres and considering that in a still atmosphere the gas travelled up and down equally, a column 40 metres high and one metre square would contain 40,000 litres of air in which 125 litres of carbonic acid would be distributed, or nearly three cubic centimetres of carbonic acid per litre. As a matter of fact, however, according to the experiments of Boussigault and Lévy, the air of Paris only contained 31 volumes of carbonic acid per 100,000 volumes, and this was only three per 100,000 in excess of the quantity contained in pure air. Nor could this addition of three volumes of carbonic acid be attributed wholly to the fuel consumed, as there were many other agencies that produced this gas. M. Müntz and M. Aubin found that the atmosphere of Paris contained from 32·2 to 42·2 volumes of carbonic acid per 100,000 volumes in heavy cloudy weather and from 28·9 to 31 volumes in fine clear weather, and the proportion was 24 volumes in the very pure air at Cape Horn. The air within the earth of the Jardin des Plantes contained 24 times more carbonic acid than was usual in the atmosphere; therefore a part of the carbonic acid in the air came from the fermentations within the soil. The report then proceeded to deal with the very considerable proportion of carbon monoxide produced by gas, by stoves, fires, &c. But nevertheless the reporters concluded that the causes of insalubrity due to industrial or domestic chemical products of combustion were in most towns less dangerous than would at first sight appear likely. Though an immense amount of carbonic acid gas and carbon monoxide was produced, still there remained but feeble traces of them in the atmosphere of the large towns. These gases were very dangerous in certain localities within certain ill-ventilated buildings, but not so in the general atmosphere. Dr. Gautier and Dr. Gréhaut thought that the emanations from the soil were far more dangerous; the smoke at worst only acted by reason of its depressing effects and not as a direct poison.

PERFECT COMBUSTION.

Dr. ZAHOR of Prague opened the discussion on this report. He reviewed the laws enacted in various countries so as to abolish smoke. To judge by the stringent nature of these enactments smoke should have long since vanished from the face of the earth. The French law forbade black and prolonged smoke; the English law which was more ancient only dealt with factories, but it inflicted a daily fine. Yet the chimneys still continued to smoke. In Bohemia the manufacturers were beginning to utilise smoke-consuming processes. Dr. Zahor felt convinced that smoke was very injurious. It caused darkness, it attracted rain, it prevented plants from growing, and it likewise lowered human vitality. It spoiled buildings, furniture, clothes, and property of all sorts. It injured the lungs, and produced nausea, headache, and all the symptoms of poisoning. To prove this it was only necessary to compare at a post-mortem examination the lungs of a person who lived in a town with those of a person residing in the country. It was not only the big factories but the small workshops and the domestic fires that contaminated the air.

Mr. ADOLPHE SMITH protested against the suggestion, sometimes lightly made, that smoke was not injurious. Parisians especially would have to be careful. Now that wood was so dear and the consumption of coal in private houses was increasing rapidly there was much more smoke in Paris; and even if this smoke was not particularly injurious in itself it became very mischievous when, mixing with a white mist, it produced a black fog; and the fogs in Paris were getting more and more like those in London. Whatever chemists might say about smoke, it was a fact that in London thick "pea-soup" fogs sent up the death-rate by leaps and bounds. As for the suggestions made that the law should insist on perfect combustion, what was perfect combustion? Theoretically, if perfectly consumed, a kilogramme of carbon should yield some 8080 calorics of heat, and produce no smoke whatsoever and no carbon monoxide. Practically a kilogramme of carbon yielded little more than 2470 calorics of heat, produced a quantity of black smoke and some carbon monoxide. Could anyone say where and how perfect combustion was produced for industrial or domestic purposes? The speaker had been privileged in making experiments with a stove that did realise the ideal of no smoke, no carbon monoxide, of perfect combustion; indeed, the combustion was so perfect that it not only melted platinum wire but consumed the stove as well. Thus a laboratory success proved a commercial failure, for no one would buy a stove which burnt itself up in a few weeks. The fact was that the problem still awaited a practical solution. They might reduce the volume of smoke but they did not know how to abolish it altogether. But the advantages of perfect combustion were so enormous from the sanitary, economical, and æsthetic points of view that every effort should be made to encourage research and inventions in this direction. The

State and the municipalities should give some impulse and facilities to such endeavours.

Dr. BERTHOT was not satisfied with the mere suppression of black smoke. He spoke of the grit or mineral particles which escaped with the white or invisible smoke or fumes and thought that where many habitations clustered round factories, which threw large quantities of such particles into the atmosphere the inhabitants would suffer from irritation and injury to the lungs.

Dr. ZAHOR had brought the matter forward in the Bohemian Diet and he was anxious to gather from the section some indication as to the recommendations which he should make to his Government.

M. BECHMANN, as President of the section, replied that the section was at least agreed that black smoke could be avoided and the law might interfere to prevent this nuisance.

The section then adjourned.

THE FIRST AND THIRD SECTIONS UNITED.

PATHOGENIC GERMS IN WATER AND IN THE SOIL.

On Thursday, August 16th, the First and Third Sections sat together in the big amphitheatre to discuss the question of water-supply. It was, as it were, a consultation, the engineers and architects seeking the advice of the bacteriologists. Dr. THOINOT and Dr. VAILLARD had presented a short report on the Presence of Pathogenic Germs in Water and in the Soil. Though such germs, it had been shown, did not live long in water, experience demonstrated that polluted water did provoke typhoid fever and cholera. In the laboratory natural conditions could not be perfectly reproduced. The typhoid bacilli died rapidly when placed in water in the laboratory, but they had been found living in water collected in the open and at various intervals, thus showing that outside they subsisted for a much longer time. According to Lösener, Remlinger, and Schneider for the typhoid bacilli, and various French and German authorities for cholera bacilli, these germs were to be found in the water-supply of populations suffering from these diseases and also in the water-supply of populations when no such epidemics prevailed. The reporters sought to explain away this flagrant contradiction by supposing that the population had been rendered immune by previous epidemics, an argument which did not take into account the instability of populations. A more plausible argument was the possibility of mistakes in observation. For these numerous bacilli, that were like the pathogenic types and yet offered some slight difference, more elaborate studies were necessary. Indeed, they were only on the threshold of such investigations. (This struck me as being a very important confession, particularly when coming from such eminent authorities. It suggests that innumerable mistakes have been committed, for the fact is acknowledged that water condemned by bacteriologists has been perfectly innocuous, while, on the other hand, it will be remembered that at Maidstone during the great typhoid fever epidemic the specific germ of this fever was not found in the water. The suggestion then was that the germ had been in the water, but that its presence had ceased by the time the water was examined. The epidemic, however, did not cease so promptly.) Dr. Vaillard and Dr. Thoinot attributed the contamination of the soil and of water to pollution from drains and cesspits. They did not believe that germs could live for long on the surface of the soil, but they might find more favourable conditions a little deeper down. Yet when Lösener examined the earth taken in close proximity to the buried bodies of persons who had died from typhoid fever and from cholera it appeared that these germs did not live more than a few weeks in the earth. But it was claimed that these experiments were not conclusive because the conditions of cemeteries varied greatly. In any case Gielt had shown that the bacillus of typhoid fever lived for five months, and for nine months in a heap of manure, and that when the earth was dug up in old parts of a town or at human guano works, epidemics of typhoid fever had ensued. It was therefore probable that soils formerly contaminated had retained for a long time infectious germs, and these could be carried to some distance by the water that traversed such soil. The earth was a natural reservoir for a great number of bacteria, especially the septic vibrio, the spores of tetanus, the pyocyanic bacillus, various pyogenic agents, the pneumococcus, &c. Lösener found the bacillus of typhoid fever deep down in the earth of a field where there was no evidence of contamination. On the other hand, in soil which had been artificially contaminated the bacteria had entirely disappeared. Remlinger and Schneider examined 13 specimens of earth collected in Paris and seven seemed to contain the germs of typhoid fever. Therefore there was something to be said for the theory that the germ of typhoid fever might exist elsewhere than in the body and in the dejecta of patients suffering from typhoid fever. If, then, such germs sometimes existed naturally in the soil and were not always the result of a specific contamination of this soil, the water gathered from such a district might communicate the disease to those who drank it. The water and the earth by themselves, and not a human contamination, might cause epidemics of typhoid fever and cholera. Otherwise, how should the presence of the cholera microbes in the water of rivers at certain seasons and periods in localities where there were no cases of cholera be explained? The same observations had been made with regard to the germ of typhoid fever. The report concluded that the study of the soil and its microbes needed much greater attention than had as yet been given to the subject.

SHOULD ALL DRINKING-WATER BE STERILISED?

It was in the face of this most perplexing report that the discussion of the joint sections began and it was quite pathetic to witness the sanitary engineers rise from their places one after the other, and appeal to the bacteriologists for some clear and distinct instructions as to what should or should not be done. Then there was also the question of the presence in water of bacteria other than the well-known pathogenic germs. Dr. A. J. MARTIN insisted that it was important to note the number of bacteria of whatever species and he seemed to think that it was a great advantage to reduce their number; but another speaker protested that he had studied the bacteria in the human mouth. These were various in race and plentiful in number. Would it be wise when the mouth seemed to need so many bacteria to extract them all from the water which they drank? The sterilisation of water might not be an unmixed blessing, for ferments were needed to digest food. A German delegate asked that a commission should be appointed, but Professor FOEDOR of Budapest, who presided over the First Section, objected that the processes for the bacteriological analysis of water varied from day to day. It was generally agreed that such analyses were indispensable and the sections desired that the process of analyses should be the same in all countries, and though this end was not likely to be attained at present, still an international commission to study the question would render great service. A resolution in favour of creating such a commission was then carried unanimously.

M. LAUNEY, as a civil engineer, now asked whether or not all life was to be suppressed in the water supplied for drinking purposes, or was it, on the contrary, better for digestive purposes to leave certain inoffensive microbes. The intestines of a newly-born infant possessed no bacteria; but when the infant had lived twenty-four hours they contained many microbes and notably the bacterium coli and yet the infant could not at that age be accused of drinking Seine water. Who was capable, clamoured the engineers, of deciding which were the injurious microbes? Water-supplies were looked upon with great suspicion because they contained the bacterium coli, but this self-same microbe abounded in the intestines of perfectly healthy men and women. Might it not be said that what existed in a healthy man could without injury remain in water? Nor was it possible to get an instrument which would be a terror to the bad and a saviour of the good. Simon de Montfort, during the Crusades, captured a town and being asked what should be done as all the inhabitants were not heretics but some of them good Christians, replied, "Massacre them all and God will recognise His own." Were they to treat the organic life existing in water in the same manner?

Dr. CALMETTE, of the Pasteur Institute at Lille, seemed to be of this opinion. He said that spring water might be very pure, but they could not be certain that it would remain pure. The more civilisation spread the greater was the tendency to pollute natural springs or water intakes. Nor could they reckon on water from the chalk remaining pure. Fissures might occur at any time in the chalk. Therefore they had better abandon the costly expedient of bringing to town from a great distance waters supposed to be pure. Let them, on the contrary, take whatever water might be close at hand whether pure or not, but let them see that it was thoroughly sterilised. For this there were two processes available, the chloride-peroxide and the ozone processes. The former was

difficult to manage and might attack the lead in the pipes and thus produce another and chemical source of poisoning. As for the sand filtering process it always let some microbes through. Ozone did not bring foreign matter to the water. It acted just as nature acted. They could have sterilised water, they could make sure that it was sterilised, but they could never be sure that a water supposed to be pure would remain pure.

M. BECHMANN, President of the Third Section, objected that the processes of sterilisation were only just becoming known. They had not been fully studied. In this very early stage of their knowledge of the subject they could not rush wildly into expenses that would involve millions of the public money. The only thing practicable was to express an opinion that more effective measures should be taken to protect the water intakes or gathering grounds.

Dr. FRAENKEL, a German delegate, argued that unless they found conditions enabling them to multiply the bacteria would die. Experiments made at Berlin with the bacilli of cholera and typhoid fever showed that they could not multiply when at a depth of two and a half or three metres from the surface of the ground. It was only the superficial layers of the soil that could contaminate the water that passed through it. Germs would not be found in the lower strata.

Now it was M. DE MONTRICHER, engineer from Marseilles, who rose and challenged the bacteriologists once more to say whether or not all bacteria were injurious. Professor FOEDOR replied that there were excellent waters which did contain microbes.

M. BARBIER (Lille) explained that an official commission had recognised the merits of the ozone process. In his house all the water was ozonised. At the Lille Pasteur Institute everyone drank ozonised water. When this water was distributed it no longer contained any ozone as ozone was extremely volatile. Fish lived well in this water. Dr. LOEFFLER, speaking in German, said they had all been taught that a sand filter was a sufficient guarantee. Chalk soil was dangerous for they never could tell when or where a fissure might occur. Therefore he preferred sterilisation. Professor POISSEL explained that all water-supplies were strictly controlled in Germany. Dr. LEMBOURG inquired whether the manufacture of ozone might not be subject to interruptions and, just as in the case of filtrations, accidents occur. Dr. GRETLER explained that at Stoltz and other places what were called springs were simply rivers emerging from the ground. Under these circumstances some bacteria might travel from three to five miles. The ozone process was good and so were the sand filters.

The PRESIDENT of the First Section here remarked that M. Launey in his report submitted to the Third Section had said that when the death-rate for three years had reached the figure of 22 per 1000 per annum the Government should insist on an investigation being held. The President thought it was too long to wait for three years.

M. LAUNEY replied that limiting the delay to three years was better than no limit, but this was a local matter of detail. His report was not a resolution but a summary of facts. He had not attempted to dogmatise, but had only sought to interrogate, and the numerous criticisms which had resulted were precisely what he wanted to call forth. Dr. Henriot of the Academy of Medicine had said that they should always use sterilised water. This was the Simon de Montfort policy and it was an unjust policy. They could not call upon the municipalities to spend large sums of money to destroy that which had not been proved to be injurious. They must, on the contrary, strive to obtain the maximum of security with the minimum of expense.

The resolution which the Third Section had carried was now put to the joint sections. To this demand that more efficacious measures should be taken to prevent the pollution of rivers and to protect water intakes Dr. CALMETTE moved an addendum engaging municipalities whose water-supply is not above suspicion to sterilise such water without, however, introducing foreign chemical substances for that purpose.

M. BECHMANN expostulated that we must be careful that in practice sterilisation did not mean the substitution of one poison for another.

Dr. CALMETTE protested that he did not advocate any special apparatus, and the two sections not only carried the resolution, but agreed generally that where the water was of doubtful quality it should sterilised.

Thus terminated a somewhat remarkable debate, for it had at least served to display the barrenness of the land. The bacteriologists who were to enlighten and instruct the engineers showed themselves to be doubtful on almost every practical point raised. It is hard to say what an engineer should do if called upon to devise a scheme of water-supply in the face of this debate. Some bacteriologists urge that the bacteria in water are harmless; some hint forcibly that even the pathogenic germ itself may not be pathogenic after all, that bacteria of some sort—they do not say what sort—are useful for the digestion, and that the bacterium coli is almost symbolical of health. Others naturally hold that its presence in water is most menacing. One party declares that sand filters or purification by the action of the soil are most efficacious, or that spring waters are the best. Then come other speakers who condemn such springs because they are but channels for carrying germs many miles; while we are also told that cholera and typhoid fever germs abound in rivers when there are no cholera and no typhoid fever in the land. Then just as the attentive listener might be tempted to think that the danger has been greatly exaggerated and that we need not trouble much about these living organisms in the water we drink, we are informed with all the authority that attaches itself to a well-known Pasteur Institute that no water whatsoever is safe and that all waters must be sterilised. If to the confusion arising from all these contradictions we add that many speakers, as noted above, insisted in speaking in German though most of them could have spoken in French and though but few persons present understood German, it will readily be gathered that the engineers who were thirsting for knowledge and precise instructions went empty away.

(To be continued.)

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Increase of Plague.—The Extraordinary Mortality in Bombay City.—The Pasteur Institute.—Punishment for the Cawnpore Plague Rioters.

As anticipated the plague mortality is increasing. There were 449 deaths in India last week as compared with 285 in the previous seven days. The increase has been chiefly in Mysore which reports 210 deaths. There was an increase also in Calcutta which returned 103 deaths, but 27 of these appear from the local returns to have been "suspected" deaths. Bombay city recorded 51 deaths and the districts recorded 64. The general mortality of Calcutta was at the rate of 41·2 per 1000 as compared with the five years' average of 27·4 per 1000. The plague and "suspected" cases do not account for the increase and there is a balance of excess not explained in the returns. It is a question whether there is not more plague than is supposed. Inquiry of the medical staff discovers the curious fact that very few of the cases occurring at the present time showed buboes. Another curious observation is that comparatively few living cases are reported. All through the outbreak there have been discovered a certain proportion of living cases, but this proportion has sunk of late to a very low percentage. It is difficult to give an explanation of these two variations.

The general mortality of Bombay in the absence of recorded plague is remarkable. There were 2203 deaths from all causes for the week ending August 21st—an increase of 621 over the previous week. The rate is no less than 139 per 1000 per annum. The deaths from cholera were 770, but this high figure leaves 1433 deaths as compared with an average weekly mortality of about 600. There were only 64 deaths returned as due to plague. However far these official returns of plague may be below the mark it is evident that plague shows no sign of recrudescence. A curious feature in the Bombay figures is the extraordinary increase in the number of deaths attributed to phthisis. That this mortality should be double the average rate is absurd and shows the worthlessness of the returns.

Cholera is very prevalent throughout India. It is again on the increase in cantonments and the following regiments are more or less sufferers. The 2nd York and Lancashire Regiment, 19th Bengal Lancers, Royal Inniskillings, 4th Bombay Rifles, 1st Royal Fusiliers, 1st Cheshire, 11th Madras Infantry, 4th Hussars, 3rd Madras Lancers, and 28th Punjab Infantry. The totals are 232 cases and 138 deaths.

The Pasteur Institute at Kasauli is evidently meeting a great want. On August 17th 28 persons were undergoing

treatment; of these two were British officers, 17 were British soldiers, and there were two native soldiers, two European civilians, and five native civilians.

The lengthy trial of those accused of participation in the murders of the police constables during the late Cawnpore plague riots has concluded with the conviction of all the principal prisoners. One prisoner was brother to one of the municipal commissioners and his action in fomenting the outbreak seems to have been largely due to the loss of a municipal contract. There was a sensational scene outside the courthouse, the crowd raising loud lamentations. 20 prisoners were sentenced to death. These plague riots were particularly vicious and the lawless element in Cawnpore has long required a severe lesson. It is to be hoped that the Government will not alter the sentences.

August 23rd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Report by the Public Health Committee of the Edinburgh Town Council on the Prevention of Consumption.

IN October, 1898, the Edinburgh Town Council remitted to the Public Health Committee to consider whether any and what steps should be taken by the local authority to protect the public in Edinburgh against consumption, and to report. The report of the Public Health Committee has now been published. This report has been prepared with great care and with the utmost regard to the opinions of the medical profession. Before any practical suggestions are made various general questions with regard to pulmonary consumption are fully discussed, the report forming an excellent treatise on the nature, the extent, distribution, communicability, prevention, and general treatment of consumption. A strong contrast is drawn between the present outlook as regards the treatment and prevention of consumption and the attitude of men's minds towards the problem 20 or 30 years ago. Now the question is full of hope, while in those days the French aphorism was being continually illustrated: "Consumption is a disease from which the rich are sometimes cured—the poor never."

The report begins by showing how little was known as to the real nature of tuberculosis until the discovery by Professor Robert Koch of the bacillus of tubercle. Men had before that, to some extent, realised the importance of hygienic conditions in the treatment of the disease, and Villemin in 1865 had proved the infectivity of the sputum, but no distinct progress was made until the cause of the disease was discovered. Regarding the organism the following points are noted. 1. The organism is the sole and only cause of consumption in whatever form the disease appears. "No bacillus, no consumption," is now an axiom. 2. It belongs not only to man but to the lower animals. 3. It comes from without and does not arise in the body. 4. The tubercle bacillus does not originate in nature outside the animal organism and the only natural places for its growth are the bodies of certain animals. 5. The organism is one that thrives in the dark and at the usual temperature of the human body. All conditions which bring about a low state of the human health, such as bad air, dark dwellings, intemperate habits, poor food, and habits of uncleanliness are favourable to the growth of the bacillus. 6. It multiplies by subdividing itself and in the early stages of the disease it multiplies very slowly. 7. Though the bacillus cannot multiply outside the body, yet it can live even in a dried condition. 8. There are degrees of virulence in the bacilli. 9. The tubercle bacillus is not inherited. This last fact must be regarded as good tidings to humanity, for if consumption be a preventable disease and not hereditary the spread of the disease may have a powerful check put upon it. There has been a great diminution in the extent of the ravages made by the disease during the last 50 years, but even at the present time Europe alone is yielding more than 1,000,000 victims per year. Tables are inserted in the report to show the distribution of the disease in Europe. Russia has the highest mortality, Austria comes next, and then France, while Germany, Sweden, and Ireland take the next place. Norway, Denmark, Scotland, the Netherlands, and Italy stand together as almost the least affected, while England and Wales take the first place with the lowest mortality. Neither poverty alone nor poverty combined with severity of climate is necessarily a cause for consumption, for in the United Kingdom the province of Connaught, the Hebrides, and the wilds of Ross and Sutherland suffer as little from consumption as the southern counties of England. The provinces of Ulster and Leinster suffer more than any other section of the United Kingdom. From the tables it is also seen that the annual death-rate per 100,000 persons is 173 from consumption and 317 from inflammatory diseases of the breathing organs; total, 490. In Ireland the figures are 203 from consumption and 277 from inflammatory respiratory diseases, the total being 480, while in England and Wales the figures are respectively 135 and 315; total, 450. The figures for Edinburgh are 191 and 331; total 522. The average for the United Kingdom is 170 and 303; total 473.

There is now a great accumulation of proof that consumption is infectious and that there are many ways by which it can be conveyed to man. Transmission from parent to child, which formerly was believed to be the only mode of infection, is now known to be of exceedingly rare occurrence. Certain persons, however, show a more or less strong disposition to succumb to the invasion of the organism just as certain persons are more liable to be attacked by the infectious fevers. Turning to the question of the preventability of consumption the committee again emphasise as a truth to be written in letters of gold that consumption is not hereditary and points out the highly significant fact that no chronic malady is so much influenced by the application of sanitary measures. From the tables compiled by Dr. Arthur Ransome, which are given in the report, it is seen that while in the year 1838—the first year of Her Majesty's reign—the death-rate from consumption per 100,000 of the population was 38, by the year 1894 this death-rate had been reduced to 14. The only cause of this change was the inbringing of healthier conditions of common life. The Queen's reign had been a period of reform. The poorer classes had benefited much by the Factory Acts and the repeal of the Corn Laws, the dawn of sanitary practice appeared, and the blessings of fresh air, sunshine, and cleanliness began to be sought after. If within the past 60 years consumption has been reduced by nearly two-thirds by the ordinary development of improved sanitary measures, the disease may in the next century become as rare as small-pox or leprosy as the result of means taken directly to combat the evil. In Germany until a short time ago there were few consumptive sanatoria, but since the formation four or five years ago of the National Union for Combating Tuberculosis sanatoria have grown up in the neighbourhood of every considerable German town. At present there is one in the course of erection in Berlin which will receive as many as 1500 patients. As regards a protective serum, so far no substance has been found which is of much use in the human subject, although the last tuberculin produced by Professor Koch is highly useful as a test for cattle, and therefore is an important means of prophylaxis for human beings. The report goes on to explain the principles of the open-air treatment of consumption and shows that for the cure of consumption high altitudes and warm climates are not necessary, as was once thought to be the case. The hope is expressed that those who have the means to give will be stimulated by the work done in the Victoria Hospital in Edinburgh and at Mr. Quarrier's Consumptives' Homes at Bridge of Weir, to increase the means, which at present are small, for the treatment of cases which are still in the stage at which the cure is possible.

As regards the duties of municipalities towards the extirpation of consumption the report recommends the following as necessary steps: (1) the devising of means to inform the public regarding the origin of consumption and its main characteristics; (2) the adoption of a satisfactory method of disinfection of houses in which cases have occurred; and (3) the encouragement of the public to take the earliest note of the earliest signs of consumption and to call in a medical man who may in any suspected case obtain a bacteriological report on whether the patient is or is not tuberculous. These three propositions are in operation in Edinburgh and the committee does not see the necessity of introducing compulsory notification in this city. They are of opinion that as places and means of treatment become available sufferers will readily come forward for relief. The committee have come to the conclusion that one special duty is incumbent on the municipal authorities—namely, to devise means of dealing with cases in the last stages of the disease which are to be found in houses of inadequate accommodation. The mortality has been found to be highest

where bad sanitation is most pronounced. The sanitary condition of the city is being steadily improved and matters are consequently much better than they were, but of the persons who died from consumption in Edinburgh last year three-fifths inhabited houses of one, two, or three rooms, the house in no case exceeding a rent of £20. Presumably most of those persons were ratepayers assisting in bearing the burdens of the city until no longer able to do so. Had they been taken ill with one of the infectious fevers they would have been entitled to the use of the city hospital. But the municipality has as yet taken no steps to meet the case of consumption, although the disease from which they suffer is a more deadly one and one from the infection of which the public ought to be protected. It is no matter of philanthropy and no matter for the parish council to undertake. If the town authorities are to deal with those cases it must do so upon purely public and not on benevolent grounds. The town cannot set up for the exercise of benevolence, but it can justify on economic grounds the protection of the lives of the citizens from the great danger of a powerful infection. This is the principle upon which it carries on a hospital for the reception of persons afflicted with infectious diseases. It is true that there are municipalities where it is recognised to be a duty to take over the charge of citizens just entering upon consumption, where the expenditure upon effecting the cure of such persons is justified on economic grounds, upon the ground that those saved lives will prove as workers and wage-earners of far more value to the community than if they had been allowed to die. The committee do not venture to make any such proposal. They believe that if those dangerous cases which have got beyond the range of cure were provided for, the probabilities of a diminution of the disease in our city would be vastly increased; and that as the hopefulness of cure at the earlier stages of the disease comes to be realised and understood it will be found that the case will strongly appeal to wealthy and benevolent citizens. The committee recommends that when the new hospital for infectious diseases is opened at Colinton Mains 100 beds should be set apart in the present city hospital for the reception of advanced cases of consumption. The cost of this would be about £50 per annum per bed, or an annual expenditure of £5000. The committee believes that the resulting reduction in the mortality from consumption would more than repay the authorities for the expenditure involved. In an appendix there are brought together reports by Sir Henry D. Littlejohn, M.D., LL.D. Edin., medical officer of health, and of the conferences held by the special committee with leading physicians and surgeons, as well as recommendations from medical men.

Aberdeen Working Men's Natural History Society.

The annual meeting of the Aberdeen Working Men's Natural History and Scientific Society took place in Marischal College on Sept. 4th when the President delivered an address on the progress of the society, in which was urged the need for a proper museum for the city.

The Plague Alarm in Aberdeen.

In connexion with the outbreak of bubonic plague in Glasgow Professor M. Hay, M.D. Edin., medical officer of health of Aberdeen, has issued a short description of the symptoms of the plague for the guidance of the medical practitioners of the city. The medical officer of health and the sanitary inspector having both pointed out that Point Law, the centre of the herring fishing operations in Aberdeen, having no sanitary conveniences, is in an unsafe sanitary condition in the event of an outbreak of plague occurring, the Public Health Committee of the Town Council are to confer with a committee of the Harbour Commissioners on the subject of laying sewers for the efficient drainage of the district. Two suspicious cases have been observed—one at the City Hospital and one at the Royal Infirmary—but both have been authoritatively declared not to be cases of the plague. All the houses but one in Rennie's Wynd which are subject to flooding have been condemned as human habitations. These dwellings are sunk below the level of the present main outfall sewer which passes along the narrow wynd; there is a large factory within a few feet of the houses, and the action of the local authorities is not to be wondered at; but as usual they have taken no steps to provide cheap house accommodation elsewhere for the poor people to be displaced.

Suggested Municipalisation of the Aberdeen Royal Infirmary.

At a meeting of the "Citizens' One-Plank" Committee, held early in this month, a report on the proposed municipalisation of the Royal Infirmary was submitted by a sub-committee, in which it was contended that the system of voluntary support was wrong in principle since it allowed a large section of the citizens to evade their responsibilities towards the sick members of the community, while it also left the institution hampered for want of funds. A resolution was adopted to the effect that "this committee is of opinion that the only way of making adequate provision for the sick is by having the management of the infirmary placed in the hands of some popularly elected board with statutory rating powers at its disposal, and resolves to take whatever steps may be necessary to have that object realised." It was resolved to call a public meeting at an early date, and it may also be mentioned that, besides the Socialists, the United Trades Council have the same matter under consideration. The managers of the hospital are averse to any such radical change.

Sept. 11th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The late Sir William Stokes.

HER Majesty the Queen has sent a message of gracious sympathy to Lady Stokes upon the death of her husband, the late Sir William Stokes, expressing her admiration of his noble, self-sacrificing works on behalf of her troops in South Africa and of the loss sustained by the distinguished profession to which he belonged in the death of one of its most eminent representatives. It will be remembered that the late Sir William Stokes was for some years Surgeon-in-Ordinary to the Queen in Ireland.

Death of Dr. Arthur Wynne Foot.

At a meeting of the standing committee of the Meath Hospital and County Dublin Infirmary held on Sept. 10th the following resolution, proposed by Mr. George Perry and seconded by Sir Philip Smyly, Surgeon-in-Ordinary to the Queen in Ireland, was passed unanimously:—

That the Standing Committee of the Meath Hospital having heard with deep regret of the decease of their late esteemed colleague, Dr. Arthur Wynne Foot, since their last meeting, desire to place on record their appreciation of his great services as physician, which for a period of over 21 years he rendered to this hospital, and to convey to Mrs. Foot the expression of their most sincere sympathy with her in her sore bereavement.

The Royal Victoria Hospital, Belfast.

At a meeting of the construction committee of this proposed new hospital held on Sept. 5th the eight tenders for the erection of the new hospital were opened, and after careful consideration the offer tendered by a Belfast firm, Messrs. M'Laughlin and Harvey, Limited, was unanimously accepted. The corporation of the city have arranged to give possession of the site for the hospital at once, and as by the contract the builders are bound to have it erected within two years and three months from the date of the execution of the contract no time will be lost. A small sub-committee was appointed to make arrangements for the laying of the foundation-stone, and it is hoped that this event will be honoured by H.R.H. the Prince of Wales. A committee was also appointed to look after matters of detail in connexion with the erection of the building and to advise the architect (Mr. Hennman of Birmingham) in regard to any points requiring adjustment which may present themselves during the progress of the work. The medical staff are represented on this committee. Subscriptions amounting to £31,162 5*s.* 5*d.* (together with interest) have been received and are lodged in the bank, while the promised subscriptions still outstanding amount to nearly £25,000. There is also a sum of £6653 14*s.* 10*d.* standing in the bank to the credit of the endowment fund, and this does not include sums received for the endowment of the "Cuming" ward, which will be handed over when the hospital is open. It is expected that the remainder of the subscriptions already promised will now be handed in.

Death of Lieutenant-Colonel S. J. Flood, F.R.C.S. Edin., R.A.M.C.

I regret to announce the death of Lieutenant-Colonel Flood, R.A.M.C., which took place at Holywood, Belfast, on Sept. 5th, the cause of death being pneumonia. Lieutenant-Colonel Flood was born at Danesfort, Belcoo, co. Fermanagh, in 1858, being the youngest son of the late Dr. Flood. He was a student at Queen's College, Galway, and at the

Ledwich School, Dublin. He was a Licentiate of the Royal College of Physicians and a Fellow of the Royal College of Surgeons of Edinburgh. In 1880 he joined the Royal Army Medical Corps, with which he saw service in Egypt and with which he was connected at the time of his death, being stationed at Holywood Barracks. He was very popular with his fellow officers and with the men. He leaves a widow and four children to mourn his premature decease.

The British Association.

The British Association at their meeting at Bradford accepted an invitation presented through an influential deputation on Sept. 7th to hold its meeting in 1902 in Belfast, a city which the members visited last in 1874, when Professor Tyndall was President, and the recollection of which has not yet passed into "the infinite azure of the past."

The Outbreak of Typhoid Fever in Belfast.

The recent report made public by the secretary of the Water Commissioners replying to the officials of the Public Health Committee, has caused a great sensation in Belfast and was very freely discussed at a special meeting of the city corporation on Sept. 7th. It is announced that the officials of the Public Health Committee will reply to it at the earliest possible moment. The thoughtful citizen, however, is getting pretty tired of this constant attempt made by two public bodies each to throw on the other responsibility for the prevalence of typhoid fever. One thing is clear, the water-supply of Belfast at present is not a first-class one, but to say that the water is the sole cause of the outbreak of typhoid fever is probably absurd, and even if it were the case would this in any way excuse the abominable sanitary defects which exist all over Belfast?

Hospital Saturday in Belfast.

Sept. 8th was Hospital Saturday, when a sum of over £500 was collected.

Belfast Lunatic Asylum.

It was decided at a meeting of the committee of the Belfast Asylum held on Sept. 10th to form a committee to confer with the medical superintendent with the view of making arrangements for the isolation of consumptive patients, of whom there are 13 suspected cases in the institution.

An Inquisitive Workhouse Master.

It would appear that the master of the Glenties Workhouse (co. Donegal) entered the dispensary of the Glenties district, which is situated in the front block of the workhouse buildings to get, according to his own statement, some boric acid for his eyes, and finding in his search two comparatively small parcels of post-mortem specimens, went next day, August 4th, to Belfast to consult the medical inspector of the Local Government Board for Ireland (Dr. C. J. Clibborn) in reference to the presence of the "two skeletons in the dispensary." On the inspector visiting the place, Mr. John Kelly, L.R.C.S. Irel., the dispensary medical officer showed him the parcels which were pathological specimens retained by him with the permission of private patients owing to their scientific interest. The matter was reported to the Local Government Board for Ireland and naturally in a district where superstition is rife it created a great deal of talk. The whole matter came up for consideration at the weekly meeting of the Glenties Board of Guardians on Sept. 10th, when after a long discussion the clerk was instructed to inform the Local Government Board that the board of guardians expressed their disapproval of the master's action in entering the dispensary and absenting himself without leave. They did not believe that he entered the dispensary for the purpose of getting boric acid and they unanimously expressed condemnation of his action. The whole matter is clearly a "mare's nest," and had the master simply mentioned the circumstance to the dispensary medical officer a simple explanation would have been given and disturbance and excitement in the district avoided.

Sept. 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Soi-disant Claim of Pharmacists to Gratuitous Medical Attendance.

A CURIOUS little case has just come before one of the *juges de paix*. It concerned a pharmacist who refused to discharge his medical attendant's bill. In justification of his action the pharmacist put forward the plea that medical men never charged pharmacists. It is true that as a matter of fact a medical man who is in personal relation with a pharmacist may receive from the latter particular services. In such a case the medical man makes a return by giving medical advice and treatment free. But this is merely a personal matter between two people in friendly relation and creates no right for any pharmacist to get medical advice free or for any medical man to get medicines at a less cost than the general public simply because he happens to be a medical man. In the case which has just been before the courts the medical man was dead and it was his heirs who claimed the amount of the bill, details of which had been regularly entered in the books. The pharmacist argued that he had custom on his side if he had not law, and that decisions in favour of the custom had already been pronounced by various *juges de paix* in similar cases. The pharmacist lost his case and the *juge de paix* who availed himself of the opinion of an expert founded his judgment upon the following considerations. "Seeing that the alleged custom does not exist as universal between pharmacists and medical men, but that if a medical man who has personal relations with a pharmacist does not charge the latter for medical attendance this is only in exchange for services rendered and is purely voluntary and a matter of courtesy, no rule is thereby laid down which can prevent a medical man from charging a pharmacist with whom he has no habitual relations and who has not rendered him any services." It was admitted by D—— that Dr. B—— was not his usual medical attendant.

The Adoption of an International Nomenclature for Causes of Death.

Scarcely one month ago Dr. de Maurans drew attention to the difficulties which the diversities of medical terminology threw in the way of international scientific coöperation and he urged that it was the duty of the International Congresses to lay down some basis for a nomenclature which should be common to all countries. This appeal has been heard. The official delegates to the International Congress of Hygiene and Demography held in Paris from August 10th to 17th have decided that in order to make the work of comparison between the nosological statistics of different countries possible a uniform nomenclature should be adopted. The committee gave as an example the statistics adopted by the city of Paris, and all the delegates save one have agreed to recommend to their respective countries that the new nomenclature should come into force on Jan. 1st, 1901—that is to say, at the commencement of the twentieth century. It has already been agreed that French nomenclature shall be the one to be used in North and South America and in a great number of European countries.

The Application to Man of the Regeneration of Confined Air by the Use of Peroxide of Sodium.

M. A. Desgrez and M. V. Balthazard have laid before the Academy of Medicine[1] a method of regenerating confined air by the decomposition of peroxide of sodium by the use of cold water. They showed that the oxygen given off by the decomposition replaced that used in respiration, and simultaneously that the soda formed took up the carbon dioxide formed by the respiration, and finally that the toxins present in expired air were destroyed by the oxidising agent. Animals confined in a small space, but where the air was regenerated by this process, survived, while control animals in whose case no regeneration was practised died. Since then they have applied the process in the case of men and have made known their results. Their early experiments were made with a somewhat cumbrous apparatus and they were obliged to simplify it. A model which they showed can, however, be carried on the back and weighs about 12 kilogrammes.

Sept. 11th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Bâle Sanatorium for Phthisical Patients.

DR. F. EGGER reports on this sanatorium which is situated at Davos and which with its 86 beds suffices for the necessities of the canton of Bâle, as 300 patients can be received annually, the average length of stay being 108

[1] THE LANCET, Feb. 25th, 1899, p. 562.

days. He separates the 530 patients—mostly of the working-classes and indigent population—who were received during the three years 1897 to 1899 into three classes. 1. (*a*) Initial cases with apex infiltration only; and (*b*) more chronic cases with localised lesions. 2. Recent and chronic cases with lesions of not more than one lung, but in good general condition. 3. More advanced cases with fever and such of a progressive character or with other tuberculous complications. Of the 284 cases in Class 1 111 were discharged cured, 120 were considerably improved, 38 were improved, 10 were stationary, and five were aggravated. Of 144 cases in Class 2 one was cured, 68 were greatly improved, 60 were improved, nine were stationary, five were worse, and one had died. Of 102 cases in Class 3 21 were greatly improved, 44 were improved, 16 were stationary, 16 were worse, and five had succumbed to the disease. Dr. Egger next discusses after results, which are of greater importance, especially to the patient. This refers only to patients one to three years after dismissal. 58 cases in Class 1 (*a*), 71 cases in Class 1 (*b*), 37 cases in Class 2, and five cases in Class 3, or a total of 171 cases out of 272 that could be traced were fit for work and would probably continue so; 16 were working (after result doubtful), 12 were only partially occupied, 19 were not fit for work, and 54 had died. (27 could not be traced.) Dr. Egger earnestly pleads for patients being sent to Davos in the initial stage, and his statistics support him. He objects to the diagnostic use of tuberculin on the strength of Dr. Knopf's (New York) statement that a latent tuberculosis can be stirred up from its quiescent state and terminate fatally. Out of 148 patients who were weighed from one to three years after their discharge and after resuming their usual occupations, 42·6 per cent. had increased in weight since leaving the sanatorium, 32·4 per cent. weighed more than before admission, 10·8 per cent. weighed the same, and only 14·2 per cent. had decreased in weight. However, a convalescent home near Bâle for some of the discharged patients is very desirable and the idea will soon be realised.

Zürich, Sept. 10th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

Consular Report for 1899.

IN his report recently issued the British Consul at Rome gives the following figures to show the diminution which has been effected in the death-rate of the city during the last quarter of a century:—

Year.	Mortality per 1000 inhabitants.
1875	33·9
1887	22 8
1899	17·2

The death-rate for 1899 compares very favourably with that of other towns in Italy and on the continent, as may be seen by another table from the same report:—

1899.	Death-rate per 1000 inhabitants.	1899.	Death-rate per 1000 inhabitants.
Rome	17·2	Budapest	22·3
Leghorn	19·0	Cologne	23·1
Venice	22·2	Munich...	23·9
Bologna	24·1	St. Petersburg ...	24·7
Paris	20·1	Madrid	30·1

There were five births, 22 deaths, and five marriages of British subjects during the year.

Progress of the Anti-malarial Campaign.

The Red Cross Society reports that during the first period (July 1st to July 23rd) of the experiments now being carried out under its auspices in the Agro Romano 30 patients were conveyed to Rome or elsewhere by the seven ambulances engaged in the work. During the second period (July 24th to August 15th) 61 patients were so transported. The medical officers attached to the ambulances attended during the first period to 880 patients, of whom 528 were affected with malaria, and during the second period to 892 patients, of whom 801 were malarial. In spite of the notoriously unhealthy character of the localities in which the ambulances are stationed no single member of the staff, either among medical men or attendants, had contracted fever during these two periods. The immunity thus enjoyed by the members of the mission is ascribed to the precautions adopted by the municipality for preventing the entrance of mosquitoes to the rooms in which the men sleep and is to be regarded as a further confirmation of the correctness of the mosquito theory of malarial infection.

The Sanatoria for Tuberculosis.

A Government Commission has been appointed to examine the scheme for the establishment of the proposed "Sanatorio Umberto I. per la Tubercolosi" described in my last letter. It has for its president Professor Bizzozero of Turin, and includes amongst its nine members Professor Durante and Professor Ballori of Rome, Professor De Giovanni of Padua, and five engineers from Milan, Turin, Rome, Naples, and Pisa respectively. The Parliamentary Committee charged with the duty of submitting the project to the Government is a large one, consisting of 29 deputies, and is presided over by Professor Baccelli. At Leghorn the municipality have taken in hand the foundation of the sanatorium for that city; the local savings bank has contributed a sum of 45,000 lire (£1800), and several members of the promoting committee offer handsome subscriptions towards it. At Pisa the communal council have passed a resolution devoting a sum of 30 000 lire (£1200) to a like object and soliciting in its favour the support of the province and communes.

Sept. 11th.

Obituary.

WILLIAM MARSHALL, M.D. ST. AND., L.F.P.S. GLASG.,

CONSULTING PHYSICIAN TO THE DUMFRIES AND GALLOWAY ROYAL INFIRMARY.

THE death is announced, on August 30th, of Dr. William Marshall of Dumfries at the age of nearly 80 years. Born in Caledon, county Tyrone, where his father, Mr. Huggins Marshall, was then resident, William Marshall received his medical education in Glasgow, taking the L.F.P.S. in 1845 and the M.D. at St. Andrews University in the same year, after which he went to the Southern States of America. Returning home in 1848 he was sent with 11 others to Dumfries to assist during the cholera epidemic of that year. On the cessation of the outbreak Dr. Marshall remained in the town as assistant to the late Dr. McCulloch and after a few years started practice on his own account. He was recognised as a skilful practitioner and his kind and genial manner secured for him a host of friends and an extensive connexion. Dr. Marshall took a keen interest in the affairs of Dumfries, served on its town council, and supported zealously schemes for improving the sanitary condition of the town, notably in regard to its water-supply. He was specially concerned in the welfare of the Dumfries and Galloway Royal Infirmary, on the medical staff of which he served up to about four years ago, when he retired and was appointed consulting physician. He was also medical officer to the Dumfries Parochial Board for over 40 years, being eventually assisted by his elder son who, unfortunately, predeceased him. Dr. Marshall was one of the first in the district to be connected with the Volunteer movement and served as surgeon for some eight years, taking part in the review by the Queen in 1860. He possessed all the wit and charm of manner which distinguish the natives of the Emerald Isle. He was a capital *raconteur*, and not even severe suffering would prevent him from making witty remarks and telling a good story. He took a close interest in all outdoor sports, especially coursing, bowling, and curling. He was fond of music and until a contraction of his little finger became pronounced he was no mean performer on the violin. He was an ardent Freemason and recently was an office-bearer in the provincial lodge. Dr. Marshall was twice married and has one surviving son now in New Zealand.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Gervais-Koyziewicz, Surgeon of the Bordeaux Hospitals.—Dr. Domingos Freire of Rio de Janeiro, whose work in the direction of searching for the cause of yellow fever and his attempts to render individuals immune to it are well known.—Dr. F. H. Frölich, Surgeon-General in the Saxon Army and a well-known author, at the age of 63 years.

PRIZES AND SCHOLARSHIPS AT THE MEDICAL SCHOOLS.

THE following is a list of prizes, &c., awarded for the sessions of 1899–1900:—

St. Bartholomew's Hospital.—Lawrence Scholarship and Gold Medal: C. J. Thomas. Brackenbury Medical Scholarship: A. T. Pridham. Brackenbury Surgical Scholarship: C. E. West. Matthews Duncan Medal and Prize: R. H. Paramore (Prize). Senior Scholarship in Anatomy, Physiology, and Chemistry: N. E. Waterfield. Entrance Scholarships—Chemistry and Physics: not awarded; Biology and Physiology: not awarded; (Junior) H. D. Clementi-Smith and K. S. Wise, equal; Preliminary Scientific Exhibition: not awarded; Jeaffreson Exhibition: M. B. Reichwald; Shuter Scholarship: H. H. Dale; Kirkes Scholarship and Gold Medal: A. E. H. Thomas. Bentley Prize: E. E. Young. Hichens Prize: A. Hamilton. Wix Prize: N. E. Waterfield. Harvey Prize: A. Hamilton. Sir George Burrows Prize: C. E. West. Skynner Prize: F. C. Shrubsall. Practical Anatomy (Junior)—Treasurer's Prize: W. Hamilton; (2) E. F. Travers, (3) T. J. Faulder, (4) C. E. Denton, (5) S. M. Lawrence, (6) W. C. Pickering, (7) C. H. Fielding, (8) H. Beckton, (9) W. H. Barnett. Practical Anatomy (Senior)—Foster Prize: (1) W. A. Aldred and H. V. Wenham, equal; (2) T. H. Harker, (3) J. Burfield, (4) A. C. Brown and C. C. Robinson, equal; (5) A. Hamilton, (6) A. F. Forster, (7) G. B. Aubrey. Junior Scholarships in Anatomy and Biology (1900): (1) T. J. Faulder, (2) E. E. Maples. Junior Scholarships in Chemistry and Histology (1899): (1) C. C. Robinson, (2) W. A. Aldred.

Charing Cross Hospital.—Livingstone Scholar: P. Rees. Huxley Scholar: R. R. Huxtable. University Scholars: A. E. Taylor and H. F. Skrimshire. Epsom Scholar: C. H. F. Johnston. Llewellyn Prize (£25): H. S. Gabb. Governors' Clinical Gold Medal: C. H. Fennell. Golding Prize: Certificate and £10, P. Gully. Pereira Prize: Certificate and £5, A. G. Pitts. Anatomy (Senior): Prize, A. G. Payne; Certificate, F. J. Pierce. Anatomy (Junior): Prize, C. G. Riddett; Certificates, P. Rees, H. Smith, P. Gully, A. G. Finch, and H. B. Sawday (equal), L. P. Maitland, and C. H. F. Johnston. Biology: Prize, P. Gully; Certificates, H. H. R. Bayley, H. F. Strictland, and G. C. Pounds. Chemistry: Prize, P. Gully; Certificates, C. P. Tessier, C. L. Sales, A. G. Finch, H. H. R. Bayley, and G. C. Pounds. Physiology (Senior): Prize, G. C. M. Davies. Physiology (Junior): Prize, G. Sheppard; Certificates, L. P. Maitland, P. Rees, H. Smith, and A. G. Finch. Medicine (Senior): Prize, H. S. Gabb: Certificates, J. P. Candler, G. O. Lambert, and E. F. Ackery. Medicine (Junior): Prize, A. E. Taylor; Certificate, H. M. Skrimshire. Surgery (Senior): Prize, Mr. E. F. Ackery. Surgery (Junior): Prize, H. F. Skrimshire. Practical Medicine: Prize, A. G. Pitts and G. O. Lambert (equal); Certificates, C. J. A. Mercier and A. R. F. Hubbard. Practical Chemistry: Prize, S. G. Amoore; Certificates, V. N. Whitamore, J. L. O. Tilley, A. G. Finch, and G. F. Denning. Psychological Medicine: Prize, H. S. Gabb; Certificates, A. G. Pitts, J. D. Rolleston, G. O. Lambert, and E. F. Ackery. Practical Midwifery: Prize, B. R. Lloyd; Certificates, A. G. Pitts and A. E. Taylor (equal). Midwifery: Prize, H. S. Gabb; Certificate, A. C. Ingram. Pathology: Prize, G. O. Lambert; Certificates, B. G. Fiddian and H. S. Gabb (equal); B. R. Lloyd and C. J. A. Mercier (equal). Public Health: Prize, C. H. Fennell; Certificate, D. V. Muller. Therapeutics: Prize, J. D. Rolleston. Forensic Medicine and Toxicology: Prize, B. G. Fiddian. Materia Medica: Prize, C. L. Lakin; Certificate, R. H. Cooper.

Guy's Hospital.—Open Scholarships in Arts: Frank Thomas Herbert Wood, Roan School, Greenwich, £100; Herbert Stanley Knight, Bancroft's School, Woodford Wells, £50; and Herbert Andrew Watney, Trent College, Derbyshire, Certificate. Dental Students: Osborne Black, Foyle College, Londonderry, £30. Open Scholarships in Science: Henry Francis Bell Walker, Stockport Grammar School, and private study, £150; John Hunter Clatworthy, Guy's Hospital, £60; Gerald Russell, Guy's Hospital, Certificate; and Harry Hunter Carter, Guy's Hospital, Certificate. Scholarship for University Students: Paul Norman Blake Odgers, Lincoln College, Oxford, £50; Greer Edmund Malcomson, Owens College, Manchester, Certificate; and Frederick Henry Parker, Pembroke College, Cambridge, Certificate. Junior Proficiency Prizes: Percy Reginald Bolus, £20; Edwin Henry Britton Milsom, £12 10*s.*, and Neville Ivens Spriggs, £12 10*s.* (equal); Kenneth Black, Certificate; Reginald Larkin, Certificate; and Alexander Moxon Webber, Certificate. Michael Harris Prize for Anatomy: Alexander Moxon Webber, £10; Reginald Larkin, Certificate; and William Leigh Maule Day and Lionel Henry Moiser (equal Certificates). Wooldridge Memorial Prize for Physiology: Percy Reginald Bolus, £10; Neville Ivens Spriggs, Certificate: and Edwin Henry Britton Milsom, Certificate. Hilton Prize for Dissection (1899): Harold Tipping, £2 10*s.*, and Alfred Herbert Edwin Wall, £2 10*s.* (equal). Arthur Durham Prizes for Dissection—First Year's Students: Edward Crosby Peers, £5. Senior Students: Alexander Moxon Webber, £15; Geoffrey Carlisle, Certificate; and Frederick Rogerson, Certificate. Dental Prizes—First Year's Students: Gerald Hamilton Morris, £10; and Samuel William Iles, Certificate. Second Year's Students (1899): John Black, £15; and Francis Wilberforce Garman and Harold Maurice, equal Certificates. Practical Dentistry Prize: Gerald Hamilton Morris, £5, and Arthur Henry Clogg, £5 (equal). Senior Proficiency Prizes: Graham Scales Simpson, £20; and Edward Cohen (Certificate). Treasurer's Gold Medal for Clinical Surgery: Graham Scales Simpson. Beaney Prize in Pathology (1899): Caleb Thomas Hilton, £34; and Frank Shufflebotham (Certificate). Richard Bredin Prize for Clinical Study: Caleb Thomas Hilton, £25.

King's College, London.—Sambrooke Exhibitions: Eardley Lancelot Holland, Thomas Henry Jones, and John James. Medical Entrance Scholarship: Arthur James Wigmore. Warneford Scholarships: John Alexander Drake and Matthew Robert Cecil McWatters. Senior Scholarship: Arthur Edmunds. Second Year Scholarship: Harold Benjamin Day. Junior Scholarships: Thomas Henry Jones and Eardley Lancelot Holland. Rabbeth Scholarship: Frederick Champ McCombie. Leathes Prize: Harold Balme and Colin James Galbraith. Warneford First Prize: Harold Balme; Second Prize: Edward Augustine Bell. Barry Prize (Divinity): Arthur Donald Griffith. Tanner Prize: Edgar Winn Fox Dolman. Todd Prize: Arthur Edmunds. Hygiene Prize: James Duncan Clay. Pathological Anatomy Prize: Alfred Hocart Brehaut. Obstetric Medicine, Forensic Medicine, and Medicine Prizes: Archibald Douglas Reid. Surgery Prize: Frederick Charles Carle. Professor Rose's Surgery Prize: Hubert Liston Willcox. Anatomy, Physiology, Chemistry, and Materia Medica Prizes: Albert Angelo Myers.

London Hospital.—Price Scholarship in Science (£120): R. Milne. Price Scholarship in Anatomy and Physiology (£60): A. W. S. Fisher. Entrance Science Scholarships—£60 Scholarship: T. D. Smith; £35 Scholarship: G. A. Soltau (equal, scholarship divided). Buxton Scholarships in Arts—£30 Scholarship: J. A. Mulvany; £20 Scholarship: J. E. Hoar. Epsom Scholarship for Students of Epsom College: L. Warren. Clinical Medicine—£20 Scholarship: A. B. Soltau and J. H. Philbrick (equal, Scholarship divided); Honorary Certificate: H. P. Bradley. Clinical Surgery—£20 Scholarship: A. B. Soltau; Honorary Certificates: A. L. Matthews, G. F. Barham, and W. Steen. Clinical Obstetrics—£20 Scholarship: W. F. Ellis; Honorary Certificates: A. L. Matthews, F. Challans, I. Stusser, and H. Balean. Duckworth Nelson Prize (Biennial, £10): awarded in 1899. Andrew Clark Prize—(Biennial, £26): H. P. Bradley; Honorary Certificate: A. B. Soltau. Letheby Prizes—Senior (£20): M. Culpin; Honorary Certificate: J. A. Milne; Junior (£10): T. D. Smith. Honorary Certificates: R. Milne, A. G. Tresidder, and V. E. Ridewood. Hutchinson Prize—(Triennial, £35): next award in 1902. Anatomy and Physiology—£25 Scholarship: M. T. Williams. Honorary Certificates: H. B. W. Smith, H. R. Cran, and R. V. Dolbey. Anatomy and Biology—£20 Scholarship: R. Milne; Honorary Certificate: D. T. Smith. Minor Surgery Prizes—£15 Prize: C. D. Walsh; £10 Prizes: J. Avery and H. B. W. Smith; £5 Prizes: A. C. Dixon, N. W. Hill, H. W. B. Danaher, R. V. Dolbey, and N. C. Wallis. Honorary Certificates: F. H. Rotheram and F. Todd. Practical Anatomy—£6 Prize: R. L. Ridge; £4 Prize: E. S. Molyneux; Honorary Certificates: F. W. Jones, H. H. Bashford, and T. S. Dudding. Anderson Prizes—£2: A. Simey, C. E. Ham, and R. A. Eastmonde. £1: A. J. Couzens, A. W. S. Fisher, and W. B. Vaile. Honorary Certificates: C. V. Bulstrode, R. Burges, E. M. Clarke, L. C. Coode, H. P. Croby, E. F. Fisher, H. R. Jeremy, H. E. Ridewood, A. M. Simpson, J. E. Spicer, I. Stusser, and E. Weatherhead.

Middlesex Hospital.—Entrance Scholarships: (1) W. N. Kingsbury and (2) T. R. Felix. University Scholarship: L. Courtauld. Broderip Scholarship: (1) F. D. Blandy, and (2) W. P. Panckridge. The Governors' Prize: F. D. Blandy. Hetley Prize: F. D. Blandy. Lyell Medal: R. F. C. Ward. Leopold Hudson Prize: T. W. Scott. Second Year's Exhibition: P. G. Foulkes; W. Gillitt (*proxime accessit*). First Year's Exhibition: W. G. Taylor. Medicine and Surgery Prizes: J. S. Goodall. Surgery Certificate: N. Black. Practical Medicine Prize: E. R. Griffiths. Certificates: C. E. Lakin, H. R. Dutton, and T. W. Scott (equal), G. P. Duprey, and G. H. K. Young. Practical Surgery Prize: L. F. Lovell-Keays; Certificates: G. P. Duprey, D. Smith, E. R. Griffiths, S. Hastings, R. Phillips, and C. W. Rowntree. Forensic Medicine and Public Health Prize: R. A. Pitter; Certificate: C. E. Lakin. Mental Diseases Prize: C. E. Lakin. Pathology Prize: A. E. Pinniger; Certificate: S. Hastings. Midwifery Prize: D. J. Thomas; Certificate: H. B. Smith. Practical Midwifery Prize: G. E. Froggatt; Certificates: T. W. Scott, D. T. Jones, C. E. Blackstone, and F. B. Penfold. Pharmacology and Therapeutics Prize: D. J. Thomas; Certificates: T. Rose and J. W. Hele. Anatomy Prize: W. Gillitt; Certificates: F. G. Foulkes, I. D. Jones, and T. Rose. Dissections Prize: W. Gillitt; Certificates: J. W. Hele and I. D. Jones. Physiology Prize: F. C. Foulkes; Certificate: W. Gillitt. Histology Prize: W. C. Macaulay; Certificates: H. W. Perkins and W. C. Taylor. Chemistry Prize (winter session): C. H. B. Thompson; summer session: F. L. Dickson; Certificate: J. C. L. Hingston. Practical Pharmacy Prize: T. R. Felix; Certificates: F. L. Dickson and W. C. Macaulay.

St. Mary's Hospital.—Entrance Scholarships—in Natural Science of £144: J. N. Kilner; £78 15*s*.: C. J. Singer; £78 15*s*. (not awarded). Exhibition in Natural Science of £26 5*s*: U. Marks. University Scholarships of £57 15*s*.: A. H. Thomas and Gnoh Lean Tuck, B.A. Exhibitions of £26 5*s*.: B. H. Spilsbury, B.A., A. G. Bate, B.A., and H. M. Wilson, B.A. General Proficiency Scholarships of £20 each—for Proficiency in Anatomy, Physiology (including Histology), Biology, Chemistry, and Physics (not awarded); for Proficiency in Anatomy and Physiology (including Histology): M. F. Kelly; for Proficiency in Midwifery, Pathology, Medical Jurisprudence, and Materia Medica: H. J. Van-Praagh; for Proficiency in Medicine and Surgery (including Operative Surgery): W. H. Willcox, B.Sc. Special Prizes—Gold Medal in Clinical Medicine: W. H. Willcox, B.Sc.; Kerslake Scholarship in Pathology and Bacteriology: W. V. Shaw, B.A.; Meadows Memorial Prize in Obstetrics: H. J. Van-Praagh; Clinical Medicine: H. J. Van-Praagh and B. F. Hussey; Clinical Surgery: W. V. Shaw, B.A., and J. F. E. Bridger (equal); Ophthalmology: R. R. Cruise and R. Hobbs; Dermatology: W. Sass and H. T. Doble; Prosectors: W. L. M. Goldie and J. H. Burgess. Class Examinations, Summer Session, 1899—Hygiene Prize: B. F. Hussey; Certificate: J. Klein; Materia Medica Prize: W. J. Morrish; Obstetrics Prize: E. W. Holyoak; Certificate: A. Whitmore, B.A.; Medical Jurisprudence Prize: B. F. Hussey; Certificate: E. L. Jenkins; Psychological Medicine Prize: W. H. Willcox, B.Sc.; Practical Chemistry Prize: E. G. R. Lithgow; Certificate, H. E. Batten; Chemistry Prize: U. Marks; Certificate, G. E. Peachell. Winter Session, 1899–1900—Medicine Prize, not awarded; Certificates: J. Tattersall, E. R. Clarke, B.A., and J. C. Matthews, B.A.; Surgery Prize: W. H. Clayton-Greene, B.A.; Certificates: C. H. Brodribb and R. R. Cruise: Practical Surgery Prize: C. H. Brodribb; Certificates: W. H. Clayton-Greene, B.A., J. F. E. Bridger, and T. H. J. E. Hughes; Pathology Prize: J. C. Matthews, B.A.; Certificates: F. M. G. Tulloch and E. R. Clarke, B.A.; Physiology (Senior) Prize, not awarded; Certificate: E. L. Ash; Physiology (Junior) Prize: W. K. D. Breton; Certificates: G. E. Peachell and A. F. Cole; Histology Prize: J. H. Burgess; Certificate: E. L. Ash; Anatomy (Senior) Prize: W. L. M. Goldie; Certificates: A. C. Motta and J. H. Burgess; Anatomy (Junior) Prize: G. E. Peachell; Certificate: J. N. Kilner; Biology Prize: S. H. Kilroe; Certificates: E. C. Young and F. C. Lloyd.

St. Thomas's Hospital.—Winter Session, 1899–1900.—Entrance Science Scholarships—First Scholarship (£150) and Certificate of Honour: L. Bathurst; Scholarship (£60) and Certificate of Honour: L. Craske. University Scholarship—Scholarship (£50) and Certificate of Honour: A. C. Hudson. First Year's Students—William Tite Scholarship (£27 10*s*.) and Certificate of Honour: K. Takaki. Second Year's Students—Peacock Scholarship (£38 10*s*.) and Certificate of Honour: H. S. Bennett; Certificate: F. W. W. Smith. Third Year's Students—Musgrove Scholarship (second tenure) and Certificate of Honour: S.U. Ind. Fifth Year's Students—College Prize (£10): F. C. Eve (Medicine); College Prize (£10): W. H. O. Woods (Surgery); College Prize (£10): T. S. Taylor (Midwifery); Hadden Prize (£10): J. E. H. Sawyer (Pathology); College Prize (£10): J. L. Lock (Pharmacology); College Prize (£10): R. B. Kinloch (Forensic Medicine and Insanity); and College Prize (£10): W. B. Fry (Public Health). Practical Medicine—Mead Medal: R. B. Kinloch; Certificate of Honour: F. C. Eve. Surgery and Surgical Anatomy—Cheselden Medal: T. H. Edwards. Pathology and Morbid Anatomy—Bristowe Medal: C. L. Hawkins; Certificates of Honour: A. E. Martin and L. S. Dudgeon. Grainger Testimonial Prize (£15): F. C. Eve. For Reports of Surgical Cases—Solly Medal and Prize: J. E. H. Sawyer. For General Proficiency and Good Conduct—Treasurer's Gold Medal: F. B. Skerrett.

University College, London.—Entrance Scholarships: Bucknill Scholarship (£120): G. Hall. Intermediate Medical Course (£57 15*s*. each): J. A. Ferrière and E. Mapother. Final M.B. Course (£79 16*s*. each): C. S. Parker and T. L. Llewellyn. Atchison Scholarship (£55 per annum for two years): R. E. Lloyd. Bruce Medal: R. E. Lloyd. Physiology (Professor E. H. Starling, M.D., F.R.C.P., F.R.S.)—Senior Class: Gold Medal, A. M. H. Gray. Third Class: G. S. Hett. Junior Class: Silver Medal, R. A. Greeves. Certificates: (2* equal) J. A. Ferrière and G. Hall, (4*) R. S. Woods, and (5*) E. G. Perodeau. Second Class: A. G. C. Findlay. Third Class: N. S. Finzi, P. M. Roberts, C. S. White. Anatomy (Professor G. D. Thane, Sub-Dean)—Senior Class—1st Silver Medal: A. M. H. Gray; 2nd Silver Medal: G. S. Hett. Third Class: C. H. Berry and M. W. Stewart-Smith. Junior Class—Silver Medal: R. A. Greeves. Certificates: (2*) G. Hall and (3*) C. D. Holdsworth. Second Class: J. A. Ferrière, G. E. O. Williams, R. S. Woods. Third Class: W. Appleyard, A. J. Blaxland, H. Farncombe, and A. G. C. Findlay. Medicine, Professor F. T. Roberts, M.D., B.Sc.—Second Class: L. G. Hopkins, A. E. Jones, and R. E. Lloyd. Surgery (Professor A. E. Barker, F.R.C.S.)—Gold Medal: R. E. Lloyd; Silver Medal: L. G. Hopkins. Second Class: A. E. Jones. Pathology (Professor Sidney Martin, M.D., F.R.S.)—Morbid Histology and Bacteriology—Tuke Silver Medal: T. L. Llewellyn. Third Class: C. S. Parker. Practical Surgery (Bilton Pollard, B.S., F.R.C.S., and Raymond Johnson, B.S., F.R.C.S.)—Erichsen Prize: L. G. Hopkins. Certificates: (2*) S. H. Bown, (3*) O. L. Addison, and (4*) T. C. Savage. Second Class: S. Bree, R. E. Lloyd, H. W. Reynolds, and A. N. Stevens. Clinical Medicine (Professor Sydney Ringer, M.D., F.R.S.)—Senior Class: Fellowes Gold Medal: H. W. Reynolds; Fellowes Silver Medal, A. E. Jones; Certificate: (3*) T. C. Savage. Second Class: D. L. Davies, A. Emerson, L. G. Hopkins, R. E. Lloyd, and G. A. Upcott-Gill. Junior Class (Professor J. Rose Bradford, M.D., D.Sc., F.R.S.)—Fellowes Silver Medal: A. F. Horn; Certificates: (2*) G. E. Waugh, (3*) C. S. Parker, and (4*) J. E. Stratton. Second Class: J. B. Burt, W. T. Crawford, L. A. E. de Zilwa, T. L. Llewellyn, and W. Parsons. Third Class: J. C. Fleming and F. J. Lawson. Clinical Dental Surgery (Lecturer, P. S. Spokes, M.R.C.S.)—Silver Medal, L. G. Hopkins. Certificates (2* equal) A. E. Jones and R. E. Lloyd. Honours List, 1899–1900.—Entrance Scholarships: E. H. Bennett-Bailey (110 guineas), C. G. Browne (£50), H. C. Hocken (£40), L. White (£40), P. Farrant (£40), H. G. L. Haynes (£40), C. D. Fox (£40), and W. H. France (£30). "Chadwick" Prize (value 20 guineas): W. Payne (Prize) and F. W. W. Dawson (Certificate). "Bird" Prize and Medal (value £14): W. Payne. Medicine: F. W. W. Dawson (Prize). Surgery: W. Payne (Prize) and F. W. W. Dawson (Certificate. Clinical Surgery: W. Payne.

* Obtained the number of marks qualifying for a Prize.

University College, Bristol.—Medicine Prize: P. G. Stock; Certificate: S. J. Willcox. Surgery Prize: R. G. Johnson; Certificate: P. G. Stock. Public Health Prize: T. Aubrey; Certificates: J. R. Frost and A. G. G. Plumley (equal). Senior Anatomy Prizes: J. D. C. Calcott and J. E. Sparks (equal). Junior Anatomy Prize: A. R. Short. Physiology Prizes: J. D. C. Calcott and J. E. Sparks (equal). Practical Physiology and Histology Prize: J. E. Sparks; Certificate: F. Parlett. Biology Prize: G. B. Gill; Certificate: W. T. Webb. Chemistry Certificates: G. B. Gill and

H. E. Hopper. Midwifery Prize: R. G. Johnson. Medical Jurisprudence Certificate: T. Aubrey. Pathology and Morbid Anatomy Prize: T. Aubrey. Operative Surgery Certificate: T. Aubrey. Practical Medicine, Surgery, and Midwifery Certificate: R. G. Johnson. Materia Medica and Practical Pharmacy Prize: H. de Vine; Certificate, A. R. Short. Practical Chemistry Prize: G. B. Gill. *Bristol Royal Infirmary*—Second Entrance Scholarship (value 10 guineas): H. O. Gough and P. Moxey (equal). Clarke Prize (interest of £489), for third year's students: P. G. Stock. Suple Medical Prize (gold medal and seven guineas in money), for students of the fifth year: James Phillips. Suple Surgical Prize (gold medal and seven guineas in money), for students of the fourth year: J. R. Frost. Tibbits Memorial Prize (value nine guineas), for Proficiency in Practical Surgery: J. R. Frost and E. M. Pearse (equal). Pathological Prizes (value three guineas): J. R. Frost and James Phillips. Ophthalmic Prize (value three guineas): P. G. Stock. Special Certificates in Obstetric Medicine: F. A. Coates, J. R. Frost, H. Hemsted, W. B. Prowse, and P. G. Stock. Dental Prize (value three guineas): S. J. Willcox. Special Dental Prize: J. L. O. Tilley. *Bristol General Hospital.*—Lady Haberfield Entrance Scholarship (interest of £1000): H. de Vine. Sanders Scholarship (value £22 10*s.*), for Proficiency in Medicine, Surgery, and Obstetric Medicine: R. G. Johnson. Clarke Scholarship (value £15), for Proficiency in Surgery: R. G. Johnson.

Queen Margaret College.—Winter Session—Medal in Chemistry: Christian E. S. Smart. Medal in Anatomy: Gertrude D. Bostock, B.Sc. Medal in Physiology: Isabel D. Mitchell. Medal in Materia Medica: Gertrude D. Bostock. Medal in Pathology: Margaret E. Bryson. Medal in Surgery: Mary J. Pirret. Medal in Practice of Medicine: Elizabeth M. Sloan. Medal in Midwifery and Gynæcology: Elizabeth M. Sloan. Summer Session—Medals in Practical Physiology and Practical Pharmacy: Eliza J. Miller. Medal in Practical Pathology: Martha H. Scott. Medal in Medical Jurisprudence and Public Health: Gertrude D. Bostock. Prize in Ophthalmology: Martha H. Scott.

Anderson's College Medical School.—Winter Session, 1899–1900. Junior Anatomy—Kerr Bursar: David L. Provan, Wishaw. Certificates of Honour (in order of merit): David L. Provan, Wishaw; Reginald N. Macdonald, Buenos Ayres; Charles H. Osmond, Somerset; William Cameron Bower, Bradford; Percy J. Thomson, Glasgow; and John Miller, Glasgow. Senior Anatomy—Certificates of Honour (in order of merit): William Don, Glasgow; William Pritchard Airey, Liverpool; John M. Kelly, Kilmarnock; and Robert Wallace, Glasgow. Anatomy Prosectors: Reginald N. Macdonald, Buenos Ayres; and Charles H. Osmond, Somerset. Summer Session, 1900—Senior Anatomy—Certificates of Honour (in order of merit): John F. Webster, Paisley; Reginald N. Macdonald, Buenos Ayres; and James Eadie, Glasgow. Physiology (Professor W. Ernest Thomson, M.A., M.D.). Winter Session, 1899–1900—Medal and First-class Certificate of Honour: John F. Webster, Paisley. Special Prize and Certificate for Practical Work: Reginald N. Macdonald, Buenos Ayres. Practical Physiology—Summer Session, 1900—Medallist: Ian Campbell, Crieff. Certificates of Honour—First Class: Ian Campbell, Crieff, and C. H. Osmond, Somerset; Second Class: L. E. Jarrett, Kent. Materia Medica and Therapeutics (Professor R. Barclay Ness, M.A., M.B.)—Winter Session, 1899–1900—Medal: Henry Doig, Glasgow. Certificates of Honour (in order of merit)—First Class: Henry Doig, Glasgow; David Moodie, Galashiels; and Robert Roberts, Anglesea; Second Class: James H. Milne, Glasgow. Dental—Second Class (in alphabetical order): John Christie, Glasgow, and William Patterson, Glasgow. Practice of Medicine (Professor Samson Gemmell, M.D.).—Winter Session 1899–1900—Senior Division—First Prize: A. D. Thompson, Forfar, and Alexander Wilson, Glasgow (equal); Second Prize: George White, Glasgow. First Class Certificates (in order of merit): James Millar, Kilwinning; Hugh P. Wright, Glasgow; Edward P. Cathcart, Ayr; John Forrest, Glasgow; Jacob Mains, Liverpool; Charles E. Cuthbert, Glasgow; Thomas T. Bathgate, Bellshill; W. B. J. Pollock, Glasgow; and James Scott, Glasgow. Junior Division—First Prize: Samuel J. Cameron, Glasgow; Second Prize: Edward Gillespie, Govan; Third Prize: J. C. Ross, Sutherlandshire. First Class Certificates (in order of merit): William Robertson, Kilmarnock; Alexander Munro, Ross-shire; Andrew Stewart, Dalserf; William A. Milne, Glasgow, and John Morrison, India (equal); and Thomas Anderson, Newfoundland. Surgery (Professor T. Kennedy Dalziel, M.B.)—Winter Session, 1899–1900—Medal: Archibald Stevenson, Kilwinning. Certificates of Honour (in order of merit): First Class: Archibald Stevenson, Kilwinning; John Forrest, Glasgow; and Archibald Macmillan, Springburn; Second Class: William S. Cowin, Isle of Man; and Thomas Carruthers, Bridge of Weir. Midwifery and Diseases of Children (Professor John Edgar, M.A., B.Sc., M.B.)—Winter Session, 1899–1900—Medal: John Forrest, Glasgow. Certificates of Honour (in order of merit): First Class: John Forrest, Glasgow; Second Class: William S. Cowin, Isle of Man; Thomas R. Hunter, Sheffield; A. R. Moir, Glasgow; Thomas Anderson, Newfoundland; and Alexander Scoular, Carluke. Diseases of Women (Professor John Edgar, M.A., B.Sc., M.B.)—Summer Session, 1900—Medallist: Robert Ramsay, Glasgow. Certificates of Honour (in order of merit): First Class: Robert Ramsay, Glasgow; Alexander Scoular, Carluke; Reginald Nairn Dunlop, Glasgow; and Cecil R. Martin, Calcutta; Second Class: Richard H. Hunter, Sheffield. Medical Jurisprudence and Hygiene (Professor Carstairs Douglas, B.Sc., M.D.)—Summer Session, 1900—Medal: J. R. Smith, Greenock. Certificates of Honour (in order of merit): First Class: J. R. Smith, Greenock; A. Scoular, Carluke; J. B. Conner, Greenock; and C. R. Martin, Partick.

London (Royal Free Hospital) School of Medicine for Women.—Anatomy (Senior) (Examiner, Stanley Boyd, F.R.C.S.)—Prize: Miss Slater; Certificates: Miss Hill, Miss E. Watts, Miss Parson, Miss Francis, Miss Townsend, Miss Whitlock, Miss Chambers, and Miss Whittingham (equal), Miss Lamb, and Miss Iredell. Anatomy (Junior) (Examiner, Stanley Boyd, F.R.C.S.)—Prize: Miss Bolton; Certificates: Miss Kensington, Miss Fraser, and Miss Elgood. Practical Anatomy—First Prize: Miss Whitlock; Second Prize: Miss Slater. Physiology (Senior) (Examiner, Dr. Brodie)—Prize: Miss Slater; Certificates: Miss Chambers, Miss Elgood, Miss Iredell, Miss Thin, Miss Parson, Miss Sexton, Miss Watts, and Miss Whitlock; Physiology (Junior) (Examiner, Dr. Brodie)—Prize: Miss Bolton; Certificate: Miss Payne. Organic Chemistry (Examiner, Miss Evans, D.Sc.)—Prize: Miss Chambers; Certificates: Miss Hill, Miss Iredell, Miss Slater, Miss Watts, Miss Thin; Miss Kidd, and Miss Woodward (equal). Inorganic Chemistry (Examiner, Miss Evans, D.Sc.)—Prize: Miss Board. Biology (Examiner, G. P. Mudge, A.R.C.Sc.)—Prize: Miss Gibbon; Certificates: Miss Schiele and Miss Waller (equal), Miss O'Brien. Physics (for Preliminary Science Students) (Examiner, Miss E. A. Stoney)—Prize: Miss Hall; Certificate: Miss O'Brien. Physics (for L.S.A. students) (Examiner, Miss E. A. Stoney)—Prize: Miss Board and Miss Mann (equal); Certificates: Miss Kellgren and Miss Renouf. Medicine (Examiners, Miss Cock, M.D., and Dr. J. Walter Carr)—Prize: Mrs. Willey; Certificates: Miss E. M. Sharp, Miss H. G. Jones, and Miss Woodcock (equal). Midwifery (Examiner, Mrs. Scharlieb, M.D., M.S.)—First Evans Prize: Miss Shepheard; Second Evans Prize: Miss Scharlieb; Third Evans Prize: Miss Walters. Certificates: Miss Hickman, Miss Woodcock, Miss Fraser, Miss McDougall, and Miss K. Vaughan (equal), Mrs. Willey, Miss E. M. Sharp, Miss Gregg, Miss Chamberlain, Miss H. G. Jones, Miss Ivens, Miss A. E. Brown, Miss Mecklenburg, Miss Thorp, and Miss Burgess. Operative Midwifery (Examiner, Mrs. Stanley Boyd, M.D.)—Evans Prize of Five Guineas: Miss McDougall; Certificates: Mrs. Willey, Miss Hamilton, Miss Fraser, Miss Ivens, Miss Shepheard, and Miss S. Smith (equal). Entrance Scholarship for October, 1899, given by the Executive Council (value £30): Miss Sommer (Examiner, Mrs. Flemming, M.D.). Mackay Prizes, October, 1899: First Prize (value £20): Miss Maude Smith. Second Prize (value £20): Miss Hooper.

TYPHOID FEVER AT MERTHYR TYDVIL.—At the meeting of the Merthyr Tydvil Urban District Council held on Sept. 5th Dr. E. G. Simons, the medical officer of health, reported that since Jan. 1st, 1900, there had been 201 cases of enteric fever notified; this represented more than all the cases notified in the two preceding years. Dr. Simons added that Merthyr Tydvil had had five times as many cases per 1000 notified as the average of all other towns where notification was adopted.

Medical News.

UNIVERSITY OF DURHAM.—At the First Examination for the degree of Bachelor in Medicine, held at the College of Medicine, Newcastle-upon-Tyne, in September, the following candidates satisfied the examiners:—

OLD REGULATIONS.

Chemistry with Chemical Physics.—Arthur Edward Clayton, L.R.C.P. and S., Edinburgh School of Medicine; John Spencer Hall, M.R.C.S., L.R.C.P., St. Thomas's Hospital; and James Sandison, M.R.C.S., L.R.C.P., London Hospital.

NEW REGULATIONS.

1. *Elementary Anatomy and Biology, Chemistry and Physics.*—First-class Honours: Thomas William Maddison, College of Medicine, Newcastle-upon-Tyne. Second-class Honours: Stanley Robson and Arthur Lewin Sheppard, College of Medicine, Newcastle-upon-Tyne. Pass List: George Nixon Biggs, St. Thomas's Hospital; Henry Mounsey Braithwaite, William Ernest Falconar, John Galloway, Norman Haliburton Hume, and Joseph Henry Lewars, College of Medicine, Newcastle-upon-Tyne; Aurelius Victor Maybury, Guy's Hospital; Ernest Martin, College of Medicine, Newcastle-upon-Tyne; Donald Murray Ross, University of New Zealand; and William Edward Stevenson, Samuel George Webb, and James Leslie Wilson, M.A., College of Medicine, Newcastle-upon-Tyne.
2. *Chemistry and Physics.*—Frederick Durnford Atkins, St. Thomas's Hospital; Llewelyn Alfred Henry Bulkeley and Arthur Budd, College of Medicine, Newcastle-upon-Tyne; Edmund Howard Barrett, M.R.C.S., L.R.C.P., St. Mary's Hospital; Herbert Christal and Hugh Boyd Cunningham, College of Medicine, Newcastle-upon-Tyne; Fred Thomas Hollway Davies, Mason College, Birmingham; Harold Edgar Featherstone, Albert James Gilbertson, Arthur Henry Hogg, George Errington Lloyd, Colin Francis Frederick McDowall, and Mary Raw, College of Medicine, Newcastle-upon-Tyne: Leslie Martin Rosten, St. Bartholomew's Hospital; Olga Schiele, London School of Medicine for Women; Frederick James Strachan, William Tait Sewell, and William Lister Tindle, College of Medicine, Newcastle-upon-Tyne; and Richard Le Geyt Worsley, M.R.C.S., L.R.C.P., L.S.A., St. George's Hospital.
3. *Elementary Anatomy and Biology.*—Cyril Claude Lavington, William Seymour, and William Frank Wilson, College of Medicine, Newcastle-upon-Tyne; and Ernest Young, St. Mary's Hospital.

VACCINATION PROSECUTIONS.—At the meeting of the Trowbridge board of guardians held on Sept. 5th it was decided that the vaccination officer should not prosecute vaccination defaulters unless authorised by the guardians.

THE LATE DR. S. GOURLEY OF WEST HARTLEPOOL.—The governors of the Hartlepool Hospital at their monthly meeting on Sept. 4th decided to place in the surgical ward a bronze medallion as a memorial of the late Mr. Samuel Gourley, M.D. Glasg., F.R.C.S. Edin., J.P. for the county of Durham. Dr. Gourley was for upwards of 30 years a member of the honorary medical staff of that institution. The medallion is the gift of his widow, Mrs. Gourley.

MILK-SUPPLY OF LLANELLY.—At the meeting of the Llanelly Sanitary Committee held on August 31st Mr. J. C. Hill, the newly-appointed veterinary inspector, reported that he had visited the majority of the rural retailers of milk and had not found any which met the requirements of the Local Government Board Order of 1885. All were deficient in either air-space, ventilation, light, flooring, or cleanliness. Within the urban area matters were not much better.

PRESENTATION TO A MEDICAL MAN.—At a recent meeting of the Sydney (Australia) City Council, the mayor of the city occupying the chair, the following resolution was unanimously carried: "That the retiring health officer, Mr. Gwynne-Hughes, be granted three months' leave on full pay, and that in accepting his resignation the council desires to place on record its high appreciation of his distinguished services to the council and to the citizens and that this expression of the council's wish be engrossed on vellum, signed by the mayor and town clerk, under seal, and conveyed to Mr. Gwynne-Hughes."

THE LATE MR. J. COUCH.—Mr. James Couch died at his residence, The Grove, Uplands, Swansea, on August 20th, in his seventy-fourth year. Mr. Couch, who was born at Swansea, received his medical education at University College Hospital, London, and took the qualifications of M.R.C.S. Eng. and L.S.A. in 1851 and 1866 respectively. He shortly afterwards commenced practice in Gower and then removed to Swansea where he for 34 years carried on an extensive practice. Mr. Couch was greatly respected in Swansea and much sympathy is felt there with his family. One of his sons is in practice at Swansea, and another, Mr. Llewelyn Couch, who was chief officer on the steamship *Mohegan*, only recently lost his life off the Manacles rock, Cornwall, while gallantly exerting himself to save the lives of the women and children.

BOOKS, ETC., RECEIVED.

ALCAN, FELIX, Paris.
Le Phtisique et Son Traitement Hygiénique. Par E. P. Léon-Petit et Dr. Herard. 1895.

AMERICAN JOURNAL OF OPHTHALMOLOGY, St. Louis, Mo.
Original Contributions concerning the Glandular Structures appertaining to the Human Eye and its Appendages. By Adolf Alt, M.D., St. Louis. Illustrated. 1900.

BAILLIÈRE ET FILS, Paris.
La Pratique des Maladies des Yeux dans les Hôpitaux de Paris. Par P. Lefert. 1895.

BAILLIÈRE, TINDALL, AND COX, King William-street, Strand, London.
An Illustrated Dictionary of Medicine, Biology, and Allied Sciences. Fifth edition. By George M. Gould, A.M., M.D. 1900. Price 40s. net.

BOOT AND SON, 24, Old Bailey, London.
Anglo-Saxon Guide to the Paris Exhibition, 1900, with a complete List of the British Awards. New edition. 1900.

CHURCHILL, J. & A., Great Marlborough-street, London.
A Short Practice of Gynæcology. By H. Jellett, B.A., M.D. Dubl. Illustrated. 1900. Price 7s. 6d.
Southall's Organic Materia Medica. By J. Barclay, B.Sc. Lond., F.C.S. Sixth edition. 1900. Price 7s. 6d.
Ulceration of the Bladder, Simple, Tuberculous, and Malignant. By E. H. Fenwick, F.R.C.S. 1900. Price 5s.
A Manual of Midwifery. By A. L. Galabin, M.D. Cantab., F.R.C.P. Lond. Fifth edition. Illustrated. 1900. Price 15s.

CLARK, R. & R., Edinburgh.
The Climatic Conditions necessary for the Propagation and Spread of Plague. By Baldwin Latham, M.I.C.E., &c. Reprint. 1900.

DENT, J. M. AND CO., Bedford-street, Strand, London.
The Human Frame and the Laws of Health. By Drs. Rebmann and Seiler. Translated from the German by F. W. Keeble, M.A. 1900. Price 1s. net.
Ethnology. Translated from the German of Dr. Michael Haberlandt. By J. H. Loewe. 1900. Price 1s. net.

DIGBY, LONG, AND CO., Bouverie-street, Fleet-street, London.
The Latest Fruit is the Ripest, or Women's Work. By Fred. Jas. Gant, F.R.C.S. Second edition. 1898. Price 1s. 6d.

KIMPTON, H., High Holborn, London.
Essentials of Diagnosis, arranged in the Form of Questions and Answers. By S. Solis-Cohen, M.D., and A. A. Eshner, M.D. Second edition. Illustrated. 1900.
Diseases of Women: a Treatise on the Principles and Practice of Gynecology. By E. C. Dudley, A.M., M.D. Second edition. Illustrated. 1900. Price 21s. net.
A Manual of Clinical Diagnosis by Means of Microscopic and Chemical Methods. By C. E. Simon, M.D. Third edition. Illustrated. 1900. Price 18s. net.

LEADENHALL PRESS, 50, Leadenhall-street, London.
The Life of Sir Astley Cooper. By William H. Horrocks, F.R.C.S. 1900.

LEWIS, H. K., Gower-street, London.
A Handbook of the Diseases of the Eye and their Treatment. By H. R. Swanzy, A.M., M.B., F.R.C.S. Irel. Seventh edition. Illustrated. 1900. Price 12s. 6d.

MASSON ET CIE, Paris.
Traité Pratique des Déviations de la Colonne Vertébrale. Par P. Redard. 1900.

NEW SYDENHAM SOCIETY, London.
Selected Essays and Monographs (from Foreign Sources). By Various Authors. 1900.

OFFICES OF THE "CHEMIST AND DRUGGIST," Cannon-street, London.
The Art of Dispensing. By P. MacEwan, F.C.S. Sixth edition. 1900.
Veterinary Counter Practice. By Qualified and Experienced Members of the Royal College of Veterinary Surgeons. Third edition. 1900.

PUBLISHED BY THE SANITARY DEPARTMENT OF THE MINISTER OF THE INTERIOR, Tokio.
Bericht über die Pestepidemie in Kobe und Osaka von November, 1899, bis Januar, 1900. Erstattet von Dr. S. Kitasato. 1900.

SIMPKIN, MARSHALL, HAMILTON AND CO., Stationers' Hall Court, London, E.C.
Assouan as a Health Resort. By W. E. Kingsford. Second edition. 1900. Price 1s. 6d.

SOUTHERN PUBLISHING COMPANY, Fleet-street, London.
Sixth International Otological Congress, London, August, 1899. Transactions. Edited by E. C. Baber, Hon. Secretary-General. 1900.

Magazines, &c., for September: Strand Magazine, Boy's Own Paper, Girl's Own Paper, Leisure Hour, Sunday at Home, Ludgate Magazine, Westminster Review, Contemporary Review, Friendly Greetings, Myra's Journal, Pall Mall Magazine, Windsor Magazine, English Illustrated Magazine, Knowledge, Humanitarian, Wide World Magazine, New Century Review, North American Review, Cornhill Magazine, Sunday Strand, Captain, Traveller, and Sandow's Magazine.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

BEALES, J. W. L., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the West Flegg Sanitary District of the East and West Flegg Incorporation, vice A. Crisp, deceased.

BENHAM, F. L., M.D. Lond., B.Sc., M.R.C.P., M.R.C.S., has been appointed a Public Vaccinator for South Australia.

BLACKER, ARTHUR BARRY, M.D., Durh., B.S., L.R.C.P. Lond., M.R.C.S., has been appointed Superintendent of the New X-ray Department at the Hospital for Consumption and Diseases of the Chest, Brompton.

BURKITT, G. O. E., L.R.C.P., L.R.C.S. Irel., D.P.H., has been appointed Honorary Surgeon to the Ear and Throat Department, the Perth Public Hospital, New South Wales.

CANN, T. M., M.R.C.S., has been re-appointed Medical Officer for the Workhouse by the Newhaven Board of Guardians.

CARY, ARTHUR JAMES, L.R.C.P., L.R.C.S., L.M. Irel., has been re-appointed Medical Officer for the Bleadon District by the Axbridge Board of Guardians.

EVANS, D. R. POWELL, L.R.C.P. Lond., M.R.C.S., L.S.A. Lond., has been appointed Medical Officer for the North Wimbledon District of the Kingston Union, vice O. W. Berry, resigned.

FINEMORE, J. H., L.R.C.P. Edin., L.S.A. Lond., has been appointed Medical Officer for Boonah, Queensland.

FOWLER, GEO., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Edin., has been appointed Assistant Resident Medical Officer to the Sheffield City Hospitals.

GAIRDNER, JAS., M.D. Edin., L.R.C.S. Edin., has been appointed Medical Officer by the Perth City Council, vice T. Crieff, resigned.

GOWLAND, J. G. BLANTYRE, L.R.C.P., L.R.C.S. Edin., L.F.P. & S. Glasg., has been appointed Captain in the Army Medical Corps, Queensland Defence Force (Land).

HAWLEY, S. H., M.B. Durh., has been appointed Medical Officer for the First Sanitary District of the Walsall Union.

HIRST, W., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Assistant Resident Medical Officer for the City Hospitals by the Leeds City Council.

HOGG, C. A., Jun., M.B., C.M. Edin., has been appointed Senior Assistant Medical Officer in the Lunacy Department of the Hospital for the Insane, Gladesville, New South Wales.

HOGGAN, B. B., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Officer of Health for the Shire of Meredith, Victoria, Australia.

HOUSE, F. M., L.R.C.P. Lond., M.R.C.S., has been appointed Officer of Health to the Beverley Local Board of Health, West Australia.

JACKSON, H. W., M.B. Lond., L.R.C.P., M.R.C.S., D.P.H., has been appointed Medical Officer for the Middlesborough Central Sanitary District, vice A. Webster.

KIRK, T. D., M.D., M.Ch. Irel., has been appointed Medical Officer for the Forden Sanitary District of the Forden Union, vice T. Morgan, resigned.

MACDONALD, G. B. D., M.B., Ch.M. Aberd., has been appointed Officer of Health for the Shire of Waranga, Eastern Riding, Victoria, Australia.

MARSH, JAS., M.B., C.M. Edin., has been appointed Medical Officer of Health for the Atherton Urban District, vice J. T. Neech, resigned.

MILLARD, R. J., M.B., Ch.M. Syd., has been appointed Senior Medical Officer, Callan Park, New South Wales.

MORTON, G., M.B. Syd., has been appointed Medical Officer, Kenmore, New South Wales.

ORMEROD, E. B., M.R.C.S., L.S.A. Lond., has been appointed Medical Officer, Thornborough, Queensland.

PRATT, ELDON, M.D. Lond., has been appointed Honorary Anæsthetist to the Cardiff Infirmary.

PRYTHERCH, JOHN R., M.B., Ch.B. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed Second Resident Medical Officer to the Chester General Infirmary.

RENDLE, R., F.R.C.S. Eng., has been appointed Health Officer for Normanton, Queensland.

SYDENHAM, F. W., M.D. Edin., D.P.H. Vict., has been appointed Medical Officer for the Second Sanitary District of the Walsall Union.

WADDY, F. H., M.D. Glasg., C.M., has been appointed Medical Officer for the South Sanitary District of the Sheffield Union, vice W. J. T. Baker, resigned.

WILLIAMS, J. H., M.D. Edin., C.M., has been re-appointed Medical Officer of Health for the Borough of Flint.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BELGRAVE HOSPITAL FOR CHILDREN, 77, Gloucester-street, London.—House Surgeon, for six months. Board and residence, with £5 allowance.

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried. Salary £150 per annum, with an allowance of £30 a year for cab hire, and furnished rooms, fire, lights, and attendance.

BRADFORD ROYAL INFIRMARY.—Dispensary Surgeon, unmarried. Salary £100 per annum, with board and residence.

BRISTOL GENERAL HOSPITAL.—House Surgeon, for three years. Salary £120 per annum, with board, residence, &c., in the house.

CITY HOSPITAL FOR INFECTIOUS DISEASES, Newcastle-upon-Tyne.—Resident Medical Assistant for one year. Salary £60, with board, lodging, and washing.

CITY OF LIVERPOOL INFECTIOUS DISEASES HOSPITALS.—Assistant Resident Medical Officer to the above Hospitals, unmarried. Salary £100 per annum, with board, washing, and lodging at the Hospital. Applications to the Town Clerk, Town Clerk's Office, Liverpool.

COUNTY ASYLUM, Lancaster.—Assistant Medical Officer. Commencing salary £125 per annum with the usual allowances.

COUNTY ASYLUM, Rainhill, near Liverpool.—Assistant Medical Officer, unmarried. Salary commences at £125, with prospect of increase to £250, with furnished apartments, board, attendance, and washing.

CUMBERLAND AND WESTMORLAND ASYLUM, Garlands, Carlisle.—Junior Assistant Medical Officer, unmarried. Salary £130 a year, rising to £150, with board, residence, &c.

CUMBERLAND INFIRMARY, Carlisle.—Assistant House Surgeon for seven months from Oct. 1st to April 30th. Salary at the rate of £40 per annum, with board, lodging, and washing.

DAVID LEWIS NORTHERN HOSPITAL, Liverpool.—Assistant House Surgeon. Salary £70 per annum, with residence and maintenance in the house.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon for 12 months. Salary £100, with board, residence, and washing.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

DUNDEE ROYAL LUNATIC ASYLUM.—Medical Assistant. Salary £100, with board and lodging.

DURHAM COUNTY ASYLUM, Winterton, Ferryhill.—Junior Assistant Medical Officer. Salary £140, rising £10 annually to £160, with board, laundry, and attendance.

EAST SUSSEX COUNTY ASYLUM, Hayward's Heath.—Second Assistant Medical Officer and Pathologist, unmarried. Salary £175 per annum, with board, lodging, washing, and attendance.

GLASGOW EYE INFIRMARY.—Resident Assistant House Surgeon. Salary £50, with apartments and board.

GUEST HOSPITAL, Dudley.—Assistant House Surgeon for six months. Salary at the rate of £40 per annum, residence, board, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months, with an honorarium of £25.

HOSPITAL FOR WOMEN, Soho-square, London.—House Physician for six months. Salary £30 for that period.

HULME DISPENSARY, Dale-street, Stretford-road, Manchester.—House Surgeon. Salary £150 per annum, with apartments, coal, and gas.

KENT COUNTY ASYLUM, Chartham, near Canterbury.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and washing.

LIVERPOOL INFIRMARY FOR CHILDREN, Myrtle-street.—House Surgeon. Salary £85 per annum, with board and lodging. Also Assistant House Surgeon for six months. Salary £25 for that period, with board and lodging.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Non-resident House Surgeon for six months. Honorarium at the rate of £25 a year.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £70 per annum, with board and residence at the Infirmary.

MANCHESTER CLINICAL HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments, and board. Apply to the Secretary, 38, Barton Arcade, Manchester.

NEWCASTLE-UPON-TYNE CITY LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £140 a year, rising £10 annually to £160.

NEW HOSPITAL FOR WOMEN, 144, Euston-road, London.—Three fully-qualified medical women as Assistants in the Out-patient Department.

NEWPORT AND MONMOUTHSHIRE HOSPITAL, Newport, Mon.—House Surgeon. Salary £100 per annum, with board and residence (no stimulants).

NOBLE'S ISLE OF MAN GENERAL HOSPITAL AND DISPENSARY, Douglas, Isle of Man.—Resident House Surgeon, unmarried. Salary £72 per annum, with board and washing.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-upon-Trent.—House Physician. Salary £100 per annum, increasing £10 per annum conditionally, with furnished apartments board, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Resident Surgeon for the Hyson Green Branch, unmarried. Salary £200 per annum. Special arrangement as to board, &c.

PARISH COUNCIL OF KINCARDINE, Ross-shire.—Resident Medical Officer. Salaries offered £52 10s. per annum as Medical Officer, £5 per annum as Vaccinator, with fees in lunacy in addition. Apply to Mr. D. Ross, Inspector of Poor, Ardgay.

PARISH COUNCIL OF TINGWALL, Whiteness and Weisdale.—Medical Officer. Salary £40 per annum, which includes the cost of medicine for paupers belonging to the parish. Apply to the Inspector of Poor, Scalloway, Shetland.

PARISH OF RESOLIS AND DISTRICT, Ross-shire.—Resident Medical Officer. Salary £72 10s., with a good general practice.

PLYMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, rising £10 annually to £200 per annum, with furnished apartments in the asylum and board and washing.

ROTHERHAM HOSPITAL.—Assistant House Surgeon. Salary £60, with board, lodging, and washing.

ROYAL ALBERT HOSPITAL, Devonport.—Assistant House Surgeon, for six months. Salary at the rate of £40 per annum, with board, lodging, and washing.

ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, Dyke-road, Brighton. House Surgeon for twelve months. Salary £80, with board, lodging, and washing. No stimulants.

ROYAL BUCKINGHAMSHIRE HOSPITAL, Aylesbury.—Resident Surgeon, unmarried. Salary £60 first year, rising annually by £10 to £100, with board and furnished apartments.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London.—House Physician for six months. Salary at the rate of £40 per annum, with furnished apartments, board, and washing. Also Resident Medical Officer for six months. Salary at the rate of £100 per annum, with furnished apartments, board, and washing.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, Ryde.—Resident House Surgeon. Salary £50 and a fee of £10 10s. for the annual course of lectures to the nurses.

SEAMEN'S HOSPITAL SOCIETY (DREADNOUGHT), Greenwich, S.E.—House Surgeon. Salary £50 per annum, with board, residence, and washing.

SHEFFIELD UNION WORKHOUSE INFIRMARY.—Junior Assistant Medical Officer, for the Workhouse Infirmary, Fir Vale, Sheffield, for one year, unmarried. Salary £75, with furnished apartments, board, and washing. Apply to the Clerk to the Guardians, West Bar, Sheffield.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon for six months. Honorarium at the rate of £50 per annum, with residence, board, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at the rate of £24 per annum, with board, washing, and residence.

THE SECRETARY OF STATE FOR THE HOME DEPARTMENT gives notice of a vacancy as Medical Referee under the Workmen's Compensation Act, 1897, for Bolton, in County Court Circuit No. 5.

WEST DERBY UNION.—Resident Assistant Medical Officer for the Workhouse, Rice-lane, Walton-on-the-Hill, Liverpool. Salary £100 per annum, with first-class rations, apartments, &c. Apply to the Union Clerk, Brougham-terrace, West Derby-road, Liverpool.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon for one year. Salary £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician and also House Surgeon for six months. Board and lodging provided.

WEST NORFOLK AND LYNN HOSPITAL, King's Lynn.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence in the hospital.

Births, Marriages, and Deaths.

BIRTHS.

BEALE.—On Sept. 8th, at Grosvenor-street, W., the wife of Peyton T. B. Beale, F.R.C.S., of a daughter.

BOWER.—On Sept. 7th, at Elton House, Gloucester, the wife of E. Dykes Bower, F.R.C.S. Ed., of a son.

DOBIE.—On Sept. 6th, at Hunter-street, Chester, the wife of W. Henry Dobie, M.B., M.R.C.S., of son.

MACAULAY.—On Sept. 2nd, at Milkwood-road, Herne-hill, S.E., the wife of Bryce Johnston Macaulay, L.R.C.P., L.R.C.S., of a son.

PEARSON.—On Sept. 8th, at Alicedale, Cape Colony, the wife of Maurice G. Pearson, M.B., B.Sc., F.R.C.S. Eng., of a son.

MARRIAGES.

BIRD—BURRINGTON.—On Sept. 11th, at Wembdon, Bridgwater, by the Rev. George Trevor, vicar of Holy Trinity, Bridgwater, assisted by the Rev. J. M. Evans, vicar of the parish, George William Harvey Bird, M.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., second son of the late George Adam Bird of Glenthorn, Worcester, to Nellie, elder daughter of G. G. Burrington, of Westfield House, Bridgwater.

CROOKS—REID.—On Sept. 8th, at Weybridge parish church, James Crooks, M.D., of Faversham, Kent, to Grace Marion, second daughter of the late George Reid, of 79, Queen-street, Cheapside.

DAVIES—WOODFIELD.—August 29th, at St. Stephen's parish church, Redditch, Hugh Davies, F.R.C.S. Eng., M.B. Lond., B.S., Vale House, Greenwich, to Elizabeth Victoria, fifth daughter of William Woodfield, Elmsdale, Redditch.

GREENE—EVANS.—On Sept. 6th, at the parish church, Cheshunt, William Adams Greene, M.R.C.S., son of the late Henry Greene, of Brookville, Co. Clare, to Mabel Alice Evans, elder daughter of Nicholl Evans, M.D., J.P., of Cheshunt, Herts.

SEDGWICK—SCOTT.—On Sept. 5th, at the United Presbyterian Church, St. Vincent-street, Glasgow, Hubert Redmayne Sedgwick, M.A., M.B., B.C., of Kingston-on-Thames, to Euphemia Scott, daughter of the late James Wallace of Ruthergien.

SPON—ROBINSON.—On Sept. 5th, at St. Peter's Church, Drayton, Abingdon, Berks, Harry James Spon, M.R.C.S., L.R.C.P., D.P.H. Cantab., son of Francis Nicolas Spon, of Brockley, to Constance Mary, third daughter of the Rev. F. E. Robinson, M.A., Vicar of the parish.

WALKER—SHAW.—On Sept. 4th, at Jesmond parish church, Newcastle-on-Tyne, Frederick Septimus Walker, M.D., B.S., youngest son of the late Thomas Walker, J.P., of Staincliffe, Seaton Carew, to Florence Edith, youngest daughter of Benjamin Shaw, Singleton House, Newcastle-on-Tyne.

DEATHS.

DAGG.—On Sept. 4th, at Park-crescent, Worthing, Trevor Augustus Dagg, M.R.C.S., L.R.C.P., third son of the late John Ross Dagg of Hatfield, aged 38 years.

HURTLEY.—On Sept. 3rd, 1900, at 25, Brunswick-place, Leeds, William Maw Hurtley, M.R.C.S. Eng., L.S.A., aged 44 years, eldest son of the late Thomas Hurtley.

MOORE.—On Sept. 6th, suddenly, Thomas Moore, F.R.C.S., of Lee-terrace, Blackheath, aged 62 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE SWANSEA HOSPITAL.

A SPECIAL meeting of the Board of Management of the Swansea Hospital was held on August 22nd, the chief business being the election of a chairman. Dr. H. A. Latimer, one of the consulting surgeons to the institution, was proposed and the nomination was duly seconded. Miss Dillwyn then moved as an amendment that another gentleman should be elected, on the ground that she was strongly opposed to the chairmanship being held by a medical man. She is further reported in the *Cambrian Daily Leader* as saying that "she thought they ought to consider the feeling of what she might call their outside constituents, who felt that there was already too much influence exercised in the management of the hospital by the medical profession." Mr. H. Goldberg seconded. The newspaper report is not very clear upon what those who were against a medical man being appointed said, but it is clear that some one made suggestions which were unfair, for towards the close of the meeting Mr. Ebenezer Davies is reported as saying that the remark that a medical man could not be expected to act fairly and honestly in the chair was an insult to an honourable profession. This same remark is also referred to by "A Friend of the Hospital," writing to the *Cambrian Daily Leader* of August 31st. Eventually Miss Dillwyn insisted on a division. The report does not say by how many votes her amendment was lost, but Dr. Latimer was eventually elected by 13 votes to 10. We are glad of this result, but we should like to understand how it is that ladies and gentlemen can allow themselves to make, or to assent to, charges of this description against the medical profession. Miss Dillwyn appears to think that a medical man cannot be trusted to adjudicate fairly in any matter where another medical man might be concerned. Objections might just as well be made to the appointment of a judge because some day he may have to try a member of the legal profession.

A CONVALESCENT HOME FOR UPPER-CLASS CHILDREN.

To the Editors of THE LANCET.

SIRS,—I should be much obliged if you or any of your readers could tell me of a convalescent home for the children of gentlepeople. I have an idea that I at one time saw an advertisement of such an institution in THE LANCET. I am, Sirs, yours faithfully,

Leeds, Sept. 7th. ALFRED G. BARBS.

SANITATION IN SCARBOROUGH.

To the Editors of THE LANCET.

SIRS,—Permit me to appeal to any medical man who may at the present time be visiting Scarborough and who may see this letter to observe the condition of the streets, particularly in regard to the sweepings that are allowed to lie and accumulate in all the thoroughfares. Although the town boasts so much of its sanitary arrangements the streets, even those where there is little traffic, smell strongly and refuse is allowed to lie for long intervals and helps to feed the boundaries of the pavements—in short, the gutters—with what ultimately becomes fine and filthy dust ready to be disturbed and blown about by any puff of wind. If some members of the medical profession would kindly note this discreditable and unhealthy condition that prevails in dry weather at the Queen of Northern Watering-places and make some reference to it in THE LANCET or direct to the officials in Scarborough they would perform a valuable public service.

I am, Sirs, yours faithfully,

Sept. 10th, 1900. Z.

THE PLAGUE OR "TYPHUS BUBONICUS."

To the Editors of THE LANCET.

SIRS,—Searching for information on the above much dreaded disease I gather the following concise description from "Fagge's Medicine." The period of incubation is from two to seven days, followed by great malaise and depression. Intense pyrexia then sets in, which may be accompanied by violent delirium and rapidly assume a typhoid form. Death may occur at an early period, before there has been any symptoms characteristic of the malady. It may be preceded by hæmaturia, hæmoptysis, and black vomit. If life be prolonged to the second or third day there commonly appear one or more buboes in the groin, armpit, or neck. This formation is commonly attended by subsidence of the delirium and fever, profuse sweating, and the pulse falling to 90 or 100. The buboes break or are opened by a surgeon if they are tedious in healing. The prognosis is very fatal, seldom less than 60 per cent. of deaths. The treatment should consist of active stimulation and support. The buboes should be opened early. A second attack is comparatively rare. It is contagious and may be conveyed by articles of clothing—wool, silk, hair, books, &c. Warm and damp weather are favourable to it. It seems less apt to occur in persons over 50 years of age than in the young.

Were I called to undertake the treatment of cases of plague I should be inclined to administer the following, which I found useful in a very bad case of scarlet fever in Lazaretto in 1891. Solution of bichloride of mercury, two drachms; iodide of potassium, 10 grains; citrate of iron and ammonia, half a drachm; syrup, half an ounce; with water to one and a half ounces—one teaspoonful every two hours. Then when the temperature is down chlorate of potash and iron. The medication of these bubonic plague cases may be described as the use of the three B's—Brandy, Beef-tea, and Bichloride. The healing of the accompanying sluggish granulation might be expedited by the local application of equal parts of iodoform and oxide of zinc. The above is merely suggestive. The mode adopted by practitioners who have had experience in the east would be interesting and valuable.

I am, Sirs, yours faithfully,

Sept. 10th, 1900. INQUIRER.

A SUBSTITUTE FOR BRANDY.

WE take the following note from the *League Journal*, a Glasgow temperance publication, of Sept. 8th. It forms part of an article headed "Our Women's Guild, Messages from Heart to Heart." The article, or perhaps we should say feature of the paper, is conducted by a Mrs. J. M. Oliver:—

"Most members of 'Our Guild' will be glad to know of a very practical way of befriending the cause which lies so near, ay, and ofttimes presses so heavily, on our hearts. Some little time ago, when on a visit to a friend—a veteran temperance worker—she showed me the prescription for a 'Substitute for Brandy,' which was as follows:—

SUBSTITUTE FOR BRANDY.
In cases of fainting, severe pains, &c.

EQUAL PARTS OF:—
Strongest tincture of ginger,
Sal Volatile, and
Chloric ether.

DOSE.—A *small* teaspoonful in about a tablespoonful of water.

FOR CHILDREN.—Half the quantity.

(*Any Chemist will make up a bottle of the mixture for 6d.*)

This lady has had 2000 neat cards printed as above, which she distributes amongst those who are either in want of the prescription or who are able to reach others to influence them against resorting even in illness to alcoholic 'remedy' (?) which contains such incalculable possibilities for evil. I hope, nay, I *expect*, that every member of 'Our Guild' will forthwith cut out or copy this prescription, and then PASS IT ON.

I took the prescription to a chemist of high standing and it is satisfactory to know that he gave it his unqualified approval. He said: 'It is a most excellent thing in *every way*.'"

We are sorry to dash Mrs. Oliver's hopes to the ground, but we should like to point out to her that brandy contains on an average about 50 per cent. of alcohol by volume. Now her prescription which is to influence others against resorting even in illness to alcoholic "remedy" is far more alcoholic than brandy; for tincture of ginger is practically pure alcohol with the essential portions of ginger dissolved in it; of nine pints and a half of sal volatile six pints are alcohol; and of 100 parts of chloric ether 95 are alcohol, so that her substitute contains quite 83 per cent. of alcohol by volume. Readers of "Mr. Ledbury" will remember Mr. Rawkin's favourite prescription, the Haustus Juniperi Comp., which the patient said was "blessed balm and their effects is peace." The composition was gin and tincture of cardamoms, but Mrs. Oliver's cordial would be even more efficacious.

INSURANCE COMPANIES AND THEIR FEES.

To the Editors of THE LANCET.

SIRS,—A circular from an insurance company has just been issued to its medical examiners requesting them to subscribe to an agreement to a reduced scale of fees for examinations. Before this document be signed would it not be well for the examiners to confer on the matter?

I am, Sirs, yours faithfully,

Sept. 11th, 1900. ECLECTIC.

**** YES.—ED. L.

THE CLUB QUESTION IN LANCASTER.

THE medical men in Lancaster are at present engaged in an interesting contest with the members of various working men's clubs. In round numbers these have a membership of some 4000. At present the men pay 3*s.* 6*d.* per head per annum for medical attendance. This includes all medicines and surgical appliances. The work is divided amongst 12 practitioners. In June the latter, through the Lancaster Medical Book Club (a very old society, which has latterly been enlarged so as to include all members of the profession practising in the town), gave notice that after the end of the present year nothing less than 5*s.* per head per annum would be accepted for attendance on club patients. After some negotiations the clubs have offered 4*s.* "to finally settle the question so far as the present staffs are concerned." This offer was refused at a meeting of the Book Club held on Sept. 8th. The move is now with the workmen.

"TIMES AND MANNERS."

IN the current number of the *Cornhill Magazine* Mr. A. D. Godley discourses in his usual pleasant manner upon the difference in manners between those of classic times and our own. Mr. Godley is at all events for the purpose of his verse *laudator temporis acti*. He points out how much happier from a medical point of view were the men of classic times as follows:—

"Then should a too luxurious fare
Sow sickness seeds (which was but seldom),
A vow or inexpensive prayer
At once effectively expelled 'em;
Not yet the boons that science brings,
No microbes yet could vex and plague you,
At worst you died of common things—
A fever or perhaps an ague.

"How changed the modern's lot from yours!
Daily do specialists affright his
Inquiring mind with scores and scores
Of things that end in death and-*itis*;
Of ailments new with newer terms
At Science feet we're always learning,
With wholly unsuspected germs
Awaiting us at every turning.

"'Twas hard undoubtedly to be
Beheaded by a tyrant's minions
Because you chanced to disagree
With his tyrannical opinions;
Yet when I view the countless swarm
Of troubles new that maim and kill us,
Proscription seems a lesser harm
Than medicine with a fresh bacillus!"

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 13th, 1900.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Sept. 7	30·05	W.	...	111	77	53	54	58	Hazy
" 8	29·93	W.	...	103	71	57	58	61	Cloudy
" 9	30·01	W.	...	107	75	51	60	64	Cloudy
" 10	30·10	N.W.	...	114	75	55	56	60	Fine
" 11	30·36	N.	...	112	70	52	55	59	Fine
" 12	30·60	N.	...	102	72	52	55	57	Hazy
" 13	30·47	N.	...	100	70	53	55	58	Hazy

During the week marked copies of the following newspapers have been received: *Linlithgowshire Gazette, Newcastle Daily Journal, Le Matin (Paris), Ross Gazette, Buxton Chronicle, Newcastle Chronicle, Manchester Guardian, Western Mercury, Glasgow Herald, Daily Express (London), Pioneer Mail, Times of India, Citizen, Scotsman, Architect, Liverpool Daily Post, Builder, Birmingham Gazette, Bristol Mercury, Yorkshire Post, Dundee Advertiser, Leeds Mercury, Blackburn Telegraph, The League Journal (Glasgow), Sanitary Record, Midland Counties Express, Rhyl Journal, Vegetarian, Hampstead Express, South London Mail, Bournemouth Directory, Southampton Observer, Brighton Herald, Perth Courier, Aberdeen Free Press, City Press, Falmouth Packet, The Guardian, Rutherglen Express, Midlothian Journal, Flint Observer, Stamford Guardian, West Sussex Gazette, Clifton Chronicle, Glamorgan Free Press, Herts Advertiser, North Devon Herald, Mining Journal, Reading Mercury, Hertfordshire Mercury, Manx Sun, Public Health Engineer, Local Government Journal, Surrey Advertiser, Harrogate Advertiser, Hereford Times, Beverley Recorder, Bath Argus, Lancaster Standard, &c., &c.*

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

WEDNESDAY (19th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.)

THURSDAY (20th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

FRIDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

SATURDAY (22nd).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (17th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. A. Whitfield: Consultation. (Skin.)

TUESDAY (18th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Taylor: Consultation. (Medical.) 6 P.M. Dr. J. E. Squire: Class. Applied Anatomy. Demonstration I.

WEDNESDAY (19th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. G. F. Still: Consultation. (Paediatrics.)

THURSDAY (20th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Consultation. (Surgical.)

FRIDAY (21st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. N. Maclehose: Consultation. (Eye.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1900, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1900 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Office, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

Communications, Letters, &c., have been received from—

A.—Dr. W. T. Allen, Liverpool; A. M. C. D.; Mr. H. Adeane, Lond.; Apollinaris Co., Lond.

B.—Mr. S. Bullivant, Nottingham; Messrs. Burroughs, Wellcome and Co., Lond.; B. Tredegar; Dr. P. Bosco, Conegliano, Italy; Bristol General Hospital, Secretary of; Dr. A. G. Barrs, Leeds; Mr. D. A. Bellilios, Wimbledon; T. B. Browne, Ltd., Lond.; Dr. C. Burland, Lond.; Dr. G. Beatson, Glasgow; Mr. W. Berry, Wigan; Dr. F. Bushnell, Plymouth; Birmingham University, Secretary of; Mr. A. S. Barting, Lancaster; Dr. J. C. Buckley, Nottingham; Messrs. C. Barker and Sons, Lond.

C.—Mr. W. F. Clay, Edinburgh; Messrs. Cresswell and Cresswell, Dowlais; Cantab, Lond.; Cumberland, &c., Lunatic Asylum, Carlisle, Secretary of; Central Chamber of Mines, Ottawa; Mr. A. Cooper, Lond.; Miss A. B. Curtis, Lond.; Messrs. J. and W. J. Courtenay, Lond.; Dr. L. Cerf, Angers, France; Capsuloid Co., Lond.; Dr. Leigh Canney, Lond.; Mr. Ernest Clarke, Lond.

D.—Mr. G. T. De Fraine, Aylesbury; David Lewis Northern Hospital, Liverpool, Secretary of; Messrs. A. Davis and Co., Lond.; Durham County Asylum, Winterton, Clerk of; Mr. M. M. Daly, Barry; Dr. W. G. Dickinson, Lond.; Dr. Norman Davis, Buntingford; Messrs. G. R. Dumbell and Co., Manchester; Messrs. Doulton and Co., Lond.; Dr. G. W. Davis, Sidcup.

E.—Mr. J. R. Essex, Pontypool; Mr. J. Ellerton, Lond.

F.—Messrs. Ferris and Co., Bristol; Messrs. B. Finch and Co., Lond.; Mr. J. B. Fry, Esher.

G.—Mr. A. Greenham, Shanklin; Glasgow Eye Infirmary, Secretary of; Dr. G. Guerrini, Bologna; Guest Hospital, Dudley, Secretary of; Messrs. J. J. Griffin and Son, Lond.; Surgeon G. E. Glynn, R.N., Plymouth; Mr. A. Graham, Lond.; Dr. G. A. Gibson, Edinburgh.

H.—Mr. J. Heywood, Manchester; Dr. I. W. Hall, Urmston; Mr. T. Hodgson, Victoria, Australia; Dr. T. W. Hime, Bradford; Mr. W. M. Hurtley, Leeds; Mr. J. Harold, Lond.; Heredity, Kingston-on-Thames; Dr. Hartmann, Paris.

I.—Income Tax Adjustment Agency, Lond.; Inquirer, Lond.

J.—Dr. Brindley James, Lond.; Dr. W. Jamison, Penrhiwceiber; J. B. B.

K.—Messrs. Kilner Bros., Lond.; Messrs. G. Kelly and Co., Lond.; Messrs. P. S. King and Co., Lond.; Kincardine Parish Council, Clerk of.

L.—Dr. J. R. Lord, Bexley; Messrs. Lee and Nightingale, Liverpool; Liverpool School of Tropical Diseases, Secretary of; London Hospital Old Students' Dinner, Secretary of; Lieutenant-Colonel Lewtas, I.M.S.; Dr. C. J. Lindsey, Plymouth; Mr. C. Lund, Newcastle-on-Tyne; Liverpool Infirmary for Children, Hon. Secretary of.

M.—Messrs. Meister, Lucius, and Brüning, Lond.; Mrs. M.; Mr. J. F. McClean, Constantinople; Maltine Manufacturing Co., Lond.; Dr. B. E. Myers, Oban; Medical Graduates' College, Lond.

N.—Mr. J. Nugent, Ordsley; North Staffs Infirmary, Stoke-on-Trent; Namron, Lond.; Dr. A. G. Naylor, Chesterfield.

O.—Mr. G. Olliver, Brighton.

P.—Mr. Y. J. Pentland, Edinburgh; Plasmon Syndicate, Lond.; Mr. J. Pond, Norwich; P. G. K.; Messrs. Parke, Davis, and Co., Lond.; Mr. R. D. Pedley, Lond.; Mr. W. Powell, Cheltenham; Mr. W. Pulman, Manchester; Messrs. A. H. Poole and Co., Waterford; Messrs. Peacock and Hadley, Lond.

R.—Mr. J. H. Ray, Manchester; Royal Alexandra Hospital for Children, Brighton, Secretary of; Rotherham Hospital, House Surgeon of; Rebman Ltd., Lond.; Royal Isle of Wight Infirmary, Ryde Secretary of; Royal College of Physicians, Lond.; R. G. A.; Dr. J. Ryley, Great Yarmouth; Mr. Arnot Reid, Lond.; Mr. T. G. Read, Lond.; Dr. J. Richardson, Morley.

S.—Dr. F. J. Smith, Lond.; Messrs. Southall Bros. and Barclay, Birmingham; Dr. T. Coke Squance, Sunderland; Southport Infirmary, Secretary of; Messrs. G. Street and Co., Lond.; Dr. T. B. Sellers, Lond.; Dr. Scanes Spicer, Lond.; Stafford, Haulbowline; Messrs. T. J. Syer, Lond.; Dr. R. D. Shields, Tiverton; Messrs. Street and Co., Lond.; Dr. F. Shufflebotham, Newcastle-under-Lyne.

T.—Dr. W. Bezley Thorne, Didcot; Mr. T. Thatcher, Bristol.

U.—University College, Liverpool, Dean of.

V.—Vinolia Co., Lond.; Volvox, Kennington; Messrs. J. W. Vickers, Lond.

W.—Dr. Mary Wilson, Lond.; Dr. Hale White, Lond.; Weston-super-Mare Hospital, Secretary of; West Bromwich District Hospital, Secretary of; West Ham Hospital, Secretary of; Mr. W. E. Wyllys, Great Yarmouth;

Z.—Herr Zitter, Vienna; Z., Scarborough.

Letters, each with enclosure, are also acknowledged from—

A.—Messrs. C. Ash and Sons, Lond.; A. C. S.; Dr. J. P. Aitchison, Blackburn.

B.—Mr. R. Bebb, Edmonton; Messrs. Bedford and Co., Lond.; Mr. C. Birchall, Liverpool; Miss Brook, Bexhill-on-Sea; Borough of Bury, Treasurer of; Mr. H. Bradburne, Newark; Mr. H. Butterfield, Northampton; Mr. E. D. Bower, Gloucester; Mr. T. W. Bevan, Llangranog; Mr. R. E. Bird, Bridgwater; Bristol Eye Hospital, Secretary of; Mrs. B., Lond.

C.—Mr. W. W. Colegrove, Lond.; Messrs. W. and R. Chambers, Edinburgh; C. H. E.; C. J. S.; C. E. S.; C. P. K.; Mr. J. B. Cameron, Lond.

D.—Dr. C. Dukes, Rugby; Dr. L. Davidson, Haslingden; D. W. P.

E.—E. B. D.; E. C.

F.—Mr. Ferdon, New York; F. R. M.; F. C. H. M.; Dr. F.; F. G.; F. W., Eastbourne.

G.—Mr. H. W. Gregor, Mickleover; Mr. O. W. Gange, Tuxford; Mr. W. Galloway, Low Fell; Dr. G. C. Garratt, Lond.; Grove Retreat, Fallowfield, Hon. Treasurer of; G. P. J.; G. H.; General Medical Council, Lond.

H.—Mr. H. R. Heptinstall, Bristol; Mr. E. G. Hawkings, Plymouth; Miss S. Haigh, Penrhyndeudraeth; Messrs. W. C. Henderson and Son, St. Andrews; Messrs. J. Haddon and Co., Lond.; Hill Crest Shanklin; Mr. A. Hawkyard, Filey; H. D.; Dr. F. M. Haig, South Nutfield; Miss K. Hogg, Lond.; H. A. B., Messrs. C. J. Hewlett and Son, Lond.; Dr. A. Holt, Lond.; H. H.

I.—Dr. A. C. Ingle, Cambridge.

J.—Rev. A. E. Jerman, Wrexham; Dr. R. C. Joyce, Perth; J. F.; Mr. H. O. Jones, Amlwch; J., Stratford; J. T. M.; J. S. W.; J. J. L.; J. S. H.; J. M.

K.—Messrs. Keith and Co., Edinburgh; Mr. P. G. J. Kennedy, Rowhedge.

L.—Mr. T. H. Lund, Chorley; London Throat Hospital, Secretary of; London College of Pharmacy, Secretary of; L. D.; Leyton, &c., Hospital, Secretary of; L.R.C.P., Leicester; Mr. F. Llewellyn-Jones, Holywell.

M.—Dr. W. Murrell, Lond.; Dr. J. Moore, Farnborough; Medicus, Sheffield; Messrs. E. MacGeorge and Co., Lond.; Messrs. J. McGeachey and Co., Glasgow; Manchester Medical Agency; Mr. H. J. W. Martin, Mill Hill.

N.—Northern Medical Association, Glasgow; Dr. E. F. M. Neave, Frieckheim.

O.—Opus, West Cross.

P.—Mr. J. R. Plant, Eastbourne; Mr. C. H. Powers, Gosforth; Mr. W. Parker, Lond.; Lieutenant-Colonel Perry, Lahore, India; Dr. F. Pollard, Lond.

Q.—Mr. P. F. Quinn, Bandon, Ireland.

R.—Dr. D. Robertson, Manchester; Dr. W. Ross, West Hartlepool; Royal Albert Edward Infirmary, Secretary of; Royal Portsmouth Hospital, Secretary of; Messrs. Richmond and Co., Warrington; R. W. J.; R. T. C.; R. W. C.

S.—Mr. H. E. Sainsbury, Lond.; Mr. J. W. Shortt, Harbottle; Dr. G. Stanton, Simcoe, Canada; Mrs. M. E. Statter, Woodlesford; Dr. R. S. Sibbit, Stamfordham; S. E. P.

T.—Mr. J. J. Tate, Bideford; Dr. E. L. Tyler Smith, Shanklin; Tallerman Institute, Lond., Secretary of; *Torquay Times*; Messrs. J. Turner and Co., Queensferry; T. V. D.; T. F.; Mr. Thorpe, Manchester; Mrs. Theobald, Leicester; Mr. J. Thin, Edinburgh.

V.—Surgeon A. H. Vizard, R.N., H.M.S. *Northampton*.

W.—Mr. C. Williams, Norwich; Mr. W. F. A. Walker, Kingsland; Messrs. F. Williams, and Co., Lond.; W. B. C.; W. M. D.; Mr. A. F. Whitwell, Shrewsbury; Dr. T. A. Wood, Douglas; West Norfolk Hospital, King's Lynn, Secretary of; W. R. H. H.; W. D.; Mr. R. T. Williams, Cwm Avon.

X.—X., Ogmore Vale.

Z.—Messrs. A. and M. Zimmermann, Lond.

EVERY FRIDAY. **THE LANCET.** PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 3, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France,—J. ASTIER, 8, Rue Traversière, Asnières, Paris.